Public Utilities

FORTNIGHTLY

BUSINESS ADMINISTRATION LIBRARY
BOSTON UNIVERSITY

August 5, 1937

THE PRESENT AS COMPARED WITH ORIGINAL COST OF CONSTRUCTION
By Carl I. Wheat

« »

Lo, Ye Poor Freight Car—
By Tyler Gaskill Price

« »

Louisville's Twelve Black Days
By Malcolm Bayley

PUBLIC UTILITIES REPORTS, INC.
PUBLISHERS

Here is your new

load builder

the SILEX GLASS COFFEE MAKER with built-in hot water heate

faster coffee service is easy to sell

and - - - faster coffee service increases your loa

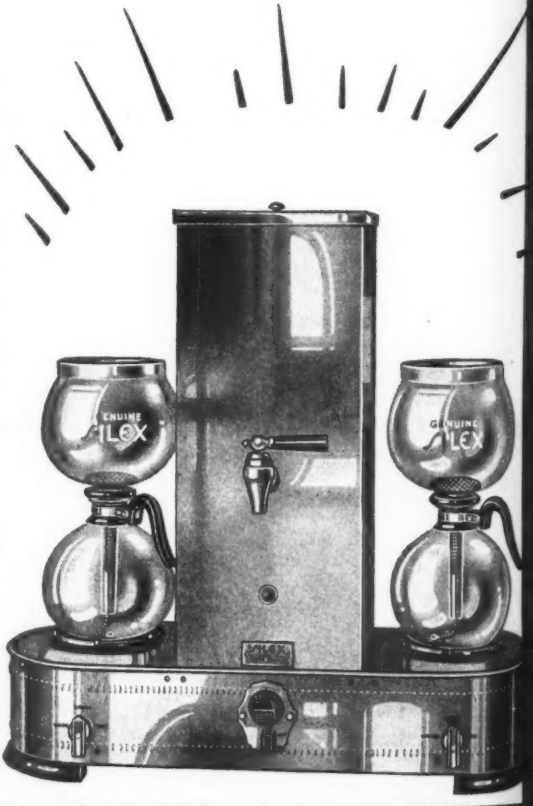
Present day restaurant and fountain service demands speed . . . and here it is. The Biltmore 2-unit model with built-in automatic water heater brews coffee faster for the rush period. It requires only 9" x 25" of valuable back bar space. There is a volume demand for these units. Sold in the quantities you can sell them, they will rapidly increase your load.

The hot water heater tank has a high heat consumption of 11,000 B.T.U's, and a lower heat consumption of 1320 B.T.U's. Each of the two coffee units uses 5,000 B.T.U's to brew and 400 B.T.U's to keep the coffee at serving temperature.

Whether you merchandise or not, Silex has a plan to help you increase your load, write for it today.

SILEX glass coffee makers are made in both gas and electric models. All of them have Pyrex brand glass, guaranteed against heat breakage. Prices range from $17.45 to $228.45. Model shown is $136.45 complete.

The Silex Company
Department P Hartford, Conn.
In Canada—The Silex Company, Ltd.
Ste. Therese, Quebec



Genuine SILEX

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

★★★ CHECK ★★★

YOUR TRUCK TIRE COSTS THIS NEW WAY

Now you can get facts about your tire costs in a new simple, accurate way.

Goodrich has developed a device called "The Truck Tire Calculator" for 1½-ton trucks. With this anyone, without previous experience, can determine

1. The probable life of his tire equipment
2. The size tire a truck owner should use for 100% normal service expectancy
3. Actual truck tire costs
4. What truck tire costs should be

Other information made available by the use of the new Tire Calculator and the Goodrich "Practical Guide for

Tire Combinations" includes:

Instructions for easy calculation of tire changeovers; changeover guide, including data on maximum payload of 131-inch and 157-inch wheelbase trucks; tire sizes and inflation pressures; rim sizes; dual spacing; and makes of trucks on which various combinations are possible.

Points Out Waste

Of special interest is a section devoted to wheel and rim problems, a data table on dual spacing for pneumatic tires and a load and service diagram illustrating the effect of overloading on the ultimate service of a pneumatic tire.

A full page is devoted to a table giving "Cost Expectancy" of tires, showing the cost of 100% service, as well as lowered costs when the percentage is raised by excellent care and maintenance of tires.

These two tools have increased tire service as much as 50% on utility operations. Why not get the same benefits for your trucks?

Calculator and Guide Are Free

We will send you free, without obligation, the new Truck Tire Calculator and Practical Guide. This is part of the service we render free

to users and prospective users of Goodrich Triple Protected Silvertowns. Just ask your secretary to write your name and address in the margin, tear off and mail. Address

Department T-122

★★ The B. F. Goodrich Company, Akron, Ohio ★★

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Editor—HENRY C. SPURR
Associate Editors—ELLSWORTH NICHOLS, FRANCIS X. WELCH
Contributing Editor—OWEN ELY

Public Utilities Fortnightly

VOLUME XX *August 5, 1937* NUMBER 3

Contents of previous issues of PUBLIC UTILITIES FORTNIGHTLY *can be found by consulting the "Industrial Arts Index" in your library.*

Utilities Almanack 129
Upper Switchbacks near Falcon ..... (*Frontispiece*) 130
The Present As Compared with Original Cost of Construction ..... *Carl I. Wheat* 131
Lo, Ye Poor Freight Car— ..... *Tyler Gaskill Price* 144
Louisville's Twelve Black Days ..... *Malcolm Bayley* 155
Financial News and Comment ..... *Owen Ely* 160
What Others Think 166

Five Interesting Papers at the Recent Electric Convention
Experience of Foreign Utilities with Deflation
Will the Doctor Join the Utility Family?

The March of Events 176
The Latest Utility Rulings 186
Public Utilities Reports 191
Titles and Index 192

Advertising Section

Pages with the Editors 6
In This Issue 10
Remarkable Remarks 12
Industrial Progress 51
Index to Advertisers 78, 80

¶ *This magazine is an open forum for the free expression of opinion concerning public utility regulation ad allied topics. It is supported by subscription and arvertsinig revenue; it is not the mouthpiece of any group or faction; it is not under the editorial supervision of, nor does it bear the endorsement of, any organization or association. The editors do not assume responsibility for the opinions expressed by its contributors.*

PUBLIC UTILITIES REPORTS, INC., PUBLISHERS
Publication Office ..... CANDLER BUILDING, BALTIMORE, MD.
Executive, Editorial, and Advertising Offices ..... MUNSEY BUILDING, WASHINGTON, D. C.

PUBLIC UTILITIES FORTNIGHTLY, a magazine dealing with the problems of utility regulation and allied topics, including also decisions of the regulatory commissions and course, preprinted from *Public Utilities Reports, New Series*, such Reports being supported in part by those conducting public utility service, manufacturers, bankers, accountants, and other users. Entered as second-class matter April 29, 1915, under the Act of March 3, 1879. Entered at the Post Office at Baltimore, Md., Dec. 31, 1936; copyrighted, 1937, by Public Utilities Reports, Inc. Printed in U.S.A.

PRICE, 75 CENTS A COPY ANNUAL SUBSCRIPTION, $15.00

Bennett

OILOSTATIC

(Reg. U. S. Pat. Off.)

TRANSMISSION SYSTEM

The way to Big Savings in Construction and Maintenance

Power transmission by Pipe Line!

OILOSTATIC is not offered as a general substitute for the usual type of conduit construction in which distribution and transmission circuits are carried beneath busy city streets. Rather, it is offered as a reliable, rugged and flexible underground cable construction capable of effecting large savings in appropriate applications.

In open country and for many routes approaching heavy load centers it can often *compete with overhead line construction.* It is particularly applicable where overhead construction would involve high right-of-way costs and where there are physical conditions adverse to towers or pole lines.

OILOSTATIC will solve perplexing problems that may arise in connection with electrification projects, tunnels, bridges, railroad embankments, highways, airports, parks and golf courses; or in crossing swamps, rivers, lakes and bays.

Distinctive features of OILOSTATIC:

NO DUCTS. NO LEAD SHEATH. NO VOIDS IN THE INSULATION. HIGHER DIELECTRIC STRENGTH. GREATER INSULATION STABILITY. HIGH CURRENT CARRYING CAPACITY. NO PRACTICAL VOLTAGE LIMITS.

Two OILOSTATIC installations, one at 132 kv. and one at 66 kv. are already in successful operation.

Our engineering services are always available. Inquiries on specific projects are invited.

OKONITE

THE OKONITE COMPANY

PASSAIC, NEW JERSEY

THE OKONITE-CALLENDER CABLE COMPANY, INC.

PATERSON, NEW JERSEY

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

Pages with the Editors

WELL, the combination of the hot weather, labor trouble, and the New Deal is certainly bringing up some strange buds down here in Washington. We thought we had heard of all kinds of strikes: sit-downs, stand-ups, knock-down-and-drag-outs (a la South Chicago), students' strikes, alimony strikes, spinach strikes (for juveniles only). We have even heard of rare instances of consumer strikes in the course of utility rate controversies.

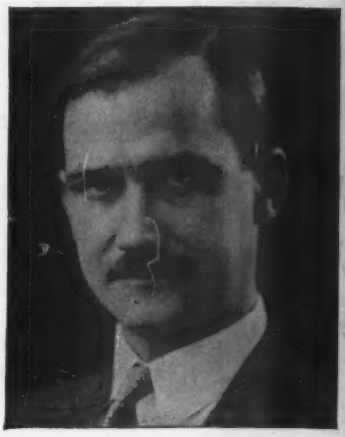
BUT it remained for our own ubiquitous Washington taxicab drivers to pull the first regulatory strike—as far as we know. The thing started in a nebulous stage several weeks ago when ye editors, who daily pass by the so-called District Building (Washington's equivalent for city hall), observed several long queues of pickets parading up and down before the offices of the public utilities commission of the District of Columbia, with signs to the effect that Washington cab drivers are not making a living wage and so forth.

THE exact demands of the disconcerted cabbies were a little vague to us, but it seemed to boil down to a complaint that there are too many cabs in Washington—a complaint which most honest Washingtonians will agree has some reasonableness in basis of fact. There is also some complaint about Federal employees driving cabs after their regular office hours—to the dismay of the full-time drivers.

CARL I. WHEAT

On its own testimony reproduction cost confounds itself.

(SEE PAGE 131)



TYLER GASKILL PRICE

He found out what makes the wheels go around.

(SEE PAGE 144)

THE complicated part of it is that the local public utilities commission seems to be more or less favorably disposed towards the cabbies' demands, but there is little it can do under the present law. We saw D. C. Police Commissioner Hazen staring glumly at the parading pickets and several minutes later we heard Vice Chairman Richmond Keech of the capital city's PUC tell the cab drivers that he was doing all he could to get Congress to remedy the law to meet the cab drivers' demands—or something.

NEXT thing we knew (this was about two weeks later) the House of Representatives killed a bill that would give the PUC power to limit the D. C. cabs, and that made the cabbies very, very angry. They determined to strike just to show those smart-aleck congressmen what was what. The strike did not last very long and probably will be forgotten by the time these lines appear in print. Just the same, it was the first time in history, apparently, that there has been such a thing as a regulatory strike and we felt that we should not let the occasion pass without appropriate notice.

NOTE also what the cabbies were striking for —more commission regulation! Can you beat it? Only two decades ago utilities were making such nasty faces about swallowing commission regulation and now they are actually

Meet Plymouth's "Ladies' Man"

WE CALL HIM Plymouth's "Ladies' Man" because his sharp eyes and careful, skilled hands check up on all the interior details of new Plymouth cars... those details which feminine eyes will be the first to appreciate.

And if the car were being delivered to a queen, this final inspection could not be more critically careful. That is why your new Plymouth is not only luxuriously comfortable but beautiful, too...and will stay beautiful for a long, long time.

All through the building of a Plymouth there is equally careful workmanship ... equally searching inspection. On the scientific sound-proofing... the rubber body mountings and airplane-type shock-absorbers that keep bumps and vibration away from you...the steering mechanism so easy on a woman's hands and arms.

As a matter of fact, *every one* of Plymouth's skilled workers is really a "ladies' man." Because they build into Plymouth cars the comfort, safety and *value* ... that women appreciate. The style and beauty...of which every woman is proud.

And every year, more and more women ...and men...learn that it's truly a great car...built to last! PLYMOUTH DIVISION OF CHRYSLER CORPORATION.

EASY TO BUY—The Commercial Credit Company has made available exceptionally low monthly payment terms... through all De Soto, Chrysler and Dodge Dealers.

PLYMOUTH BUILDS GREAT CARS

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

crying for it. Well, more power to the Washington cabbies—may they get all the regulation their hearts desire. Maybe, also, Brothers Elgen, Keech, and Sultan of the Washington, D. C., commission ought to tell the rest of the regulatory fraternity the secret of their charm.

TRUE, it is a little difficult to understand just what the cabbies expected to accomplish with such a strike other than a forceful demonstration of protest. One usually thinks of a strike as an issue between employees and employers, but here there was no demand being made upon any one who could do anything about it. The House of Representatives might be moved to change its mind but meantime the humbler citizens walked or took a street car. Anyway, the transit companies all over the country could use a lot of strikes like that.

SPEAKING of transportation troubles, TYLER GASKILL PRICE has been giving considerable study to the freight car problem. For some years the railroad men have been pointing with alarm to the economic plight of the transportation business, and MR. PRICE finally decided to accept the suggestion and go have a look for himself. He did, and the piece in this issue (beginning page 144) is the result. MR. PRICE is a noted author, engineer, and inventor, who has spent most of his active professional years with the engineering department of the Commonwealth Edison Company, specializing in electrified transportation. He resigned to resume private consulting practice in his native Chicago.

A NEWCOMER to FORTNIGHTLY pages is CARL I. WHEAT, whose article on the classical quarrel between reproduction and original cost in rate valuation appears on page 131. MR. WHEAT is most widely known just now as the special counsel for the special telephone company investigation being conducted by the Federal Communications Commission, pursuant to congressional resolution. Out on the West Coast, however, CARL WHEAT is noted for his work as public utilities counsel for the city of Los Angeles and the California Railroad Commission (in reverse chronological order). Born in Massachusetts in 1892, MR. WHEAT went West as a very young man and graduated (A. B., '15) from Pomona College. He returned to Massachusetts to study law at Harvard (LL. B., '20). Despite his busy career in private and official practice, MR. WHEAT has found time to write a number of scholarly volumes and manuscripts. We hope he'll find time to continue to appear in the FORTNIGHTLY occasionally.

MALCOLM BAYLEY has been a newspaper man for thirty years, most of which time was spent in Louisville, Ky., on *The Courier-Journal*, Marse Henry Watterson's old paper,

MALCOLM BAYLEY

Twelve nights in a news room.

(SEE PAGE 155)

and *The Times*, its afternoon edition. He worked on all the news room desks, including city, telegraph, and sport. He became an editorial writer on *The Courier-Journal* in 1923 and served those famous columns until February of this year, when he joined the staff of *The Christian Science Monitor*.

DURING the great Louisville flood, MR. BAYLEY was a copy reader for the Flood Editions, published for twelve days in neighboring cities to bring the truth of the flood situation to the news-hungry thousands gathered in the Highlands of the city. The editor of *The Times* handled news, answered telephones, and washed dishes for the crew marooned in the building. The publisher answered telephones and played copy boy. The head pressman, with no presses operating, became a messenger boy.

AS a result of these critical days, MR. BAYLEY wrote for us an article (beginning page 155) on the flood, stressing the angle of utility service. Only one who went through that terrible experience can fully realize what our utilities mean to us.

IMPORTANT decisions preprinted from *Public Utilities Reports* may be found in the back of this number.

THE next number of this magazine will be out August 19th.

The Editors

All the more reason for . . . calling in Remington Rand. Of course, every utility company has its own individual customer billing problems. And that is why Remington Rand, with its years of specialized experience in this field, can supply the right answer every time.

Whether you use the register plan, bill and ledger plan, stub plan or bill and punch card plan, there's a Remington Rand machine that will fit your needs exactly. You don't have to make your system over to fit any particular type of equipment.

With your billing installation—or any part of it—from Remington Rand, you get every modern feature that can save you money. Remington Rand, moreover, takes full responsibility for installation and results.

Free analysis of your present customer billing. Let Remington Rand study your billing procedure to see how speed and accuracy can be increased and costs cut. Phone Remington Rand in your city for free authentic analysis or write Remington Rand Inc., Buffalo, N. Y.

SEEN THE ELECTRIFIED MODEL "85"?
One of the most widely used machines in Remington Rand's complete line is the all electrified Model "85" which prepares bill and related records at one time and in one operation, eliminating needless duplication and assuring utmost accuracy.

Ok.. it's from **Remington Rand**

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

In This Issue

In Feature Articles

Present as compared with original cost, 131.
Concept of fair value, 132.
Consideration of hypothetical costs, 134.
Imaginary plant construction, 136.
U. S. Supreme Court decisions, 138.
Danger of seeking inflated rate base, 143.
Status of the freight car, 144.
Yearbook of Railroad Information, 145.
Low thermal efficiency of steam locomotive, 148.
The costly freight car, 150.
Bad enginering of the freight car, 153.
Louisville's twelve black days, 155.
Maintenance of service in face of dangerous conditions, 156.
Reminder of value of utility service, 157.

In Financial News

Are the utilities preparing for January 1, 1938, 160.
Security markets indicate returning confidence, 161.
Bituminous coal industry opposes "TVA's Seven Sisters," 162.
Bell system continues sharp gains, 162.
Corporate notes, 163.
Increased efficiency of steam generating power plants, 164.
Electric equipment sales, 164.
Municipal plants making heavy profits, 165.
Utility expenditures for new construction, 165.

In What Others Think

Five interesting papers at the recent electric convention, 166.
Experience of foreign utilities with deflation, 170.
Will the doctor join the utility family, 174.

In The March of Events

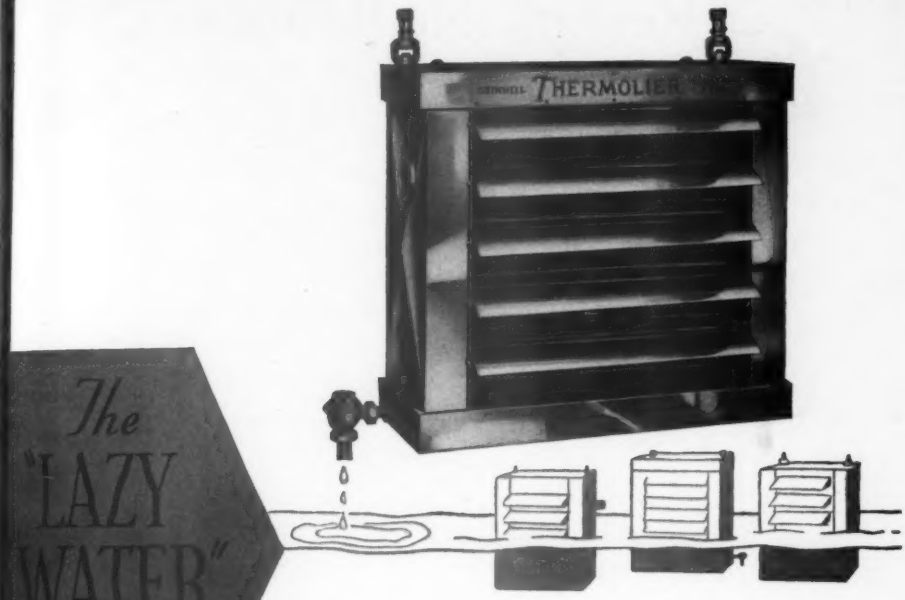
SEC announces new rules, 176.
TVA negotiates power contract, 176.
Radio probe asked, 176.
Court seeks details, 176.
TVA area mapped, 177.
Power region bill shelved, 177.
NRC report covers power, 177.
News throughout the states, 178.

In The Latest Utility Rulings

Federally financed Massachusetts electric corporation denied authority, 186.
Commission upheld in pay station case, 186.
Commission decision on street car fares sustained after reëxamination, 187.
Load count rate eliminated, 187.
Unauthorized stock transactions held invalid and restoration of status required, 188.
Security issues for needed improvement when company's right to operate is disputed, 188.
Oregon commissioner rules on contributions to organizations, 189.
Cost allocation on switched telephone line, 190.
Miscellaneous rulings, 190.

PREPRINTS FROM PUBLIC UTILITIES REPORTS

Various regulatory rulings by course and commissions reported in full text, pages 1-64, from 19 P.U.R.(N.S.)



The "LAZY WATER" LINE IS THE **DANGER** LINE!

LOW COST HEAT

Owners Report Savings Up To 28% When Thermoliers Replace Other Types Of Heating Systems.

• •

Shown, top of page, Thermolier Industrial Type. Above, Thermolier Factory Type.

Draw a line through a unit heater, marking the top of the "lazy water"—collected condensation—that partly fills it. You've drawn the "lazy-water" line—you've marked the *danger line* of unit heater efficiency.

That line always passes *underneath* a Grinnell Thermolier! For Thermolier's positive built-in drainage, Thermolier's exclusive Internal Cooling Leg mean *no lazy water can collect in a Thermolier! Continuous* removal of condensation keeps *all* of the heater working, *all* of the time.

That is only one of Thermolier's 14 points of superiority. But it's important enough so that, before buying any unit heater, you should find out what provision is made for removal of "lazy water." Learn more about this better way toward better heating! Write to-day for the free Thermolier Data Book. Grinnell Co., Inc., Executive offices, Providence, R. I., Branch offices in principal cities.

GRINNELL THERMOLIER

THE UNIT HEATER WITH 14 POINTS OF SUPERIORITY

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Remarkable Remarks

"There never was in the world two opinions alike."
—MONTAIGNE

HUGH S. JOHNSON
Former NRA Administrator.

"On this TVA *vs.* the utilities issue, somebody is lying like hell."

CLARENCE F. LEA
U. S. Representative from California.

"Duplication (of gas mains) means inferior service or, in the end, higher prices."

DAN KIDNEY
Newspaper columnist.

"That compromise court plan is just the original Roosevelt bombshell with a delay fuse."

ARTHUR E. MORGAN
Chairman, Tennessee Valley Authority.

"There is no national freight rate structure, but rather a composite of regional structures."

SHERMAN MINTON
U. S. Senator from Indiana.

"I do not know what is meant by 'packing' the Supreme Court, if the Supreme Court does not pack itself."

"W. C. S."
Writing in The Chicago Tribune.

"When politicians set out to build the biggest something or other it always turns out to be a deficit or a water-power project or both."

THE REV. J. V. MOLDENHAWER
Pastor, First Presbyterian Church, New York City.

"We would never have the books that ought to be written if we did not have a certain number of authors who did not care about royalties."

WILLIAM M. WHITTINGTON
Chairman of the Committee on Flood Control, House of Representatives.

"Authorities and planning agencies constitute a revolutionary proposal for public works construction; they mean an economic and planning dictatorship."

WALTER F. ALLEN
Director of Publicity, Thomas Alva Edison Foundation, Inc.

"He (Edison) has led no armies into battle—he has conquered no countries—he has enslaved no peoples—yet he wields a power the magnitude of which no warrior has ever dreamed."

GEORGE O. SANFORD
General Supervisor of Operation and Maintenance, U. S. Bureau of Reclamation.

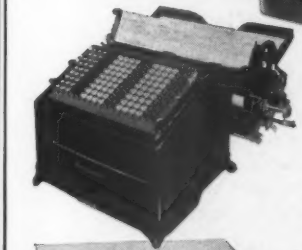
"Revenues received from the sale of surplus power are a most effective method of collecting payment for the indirect benefits which cities and towns derive from irrigation development."

Burroughs

NEW LOW-COST PAYROLL MACHINE

SAVES TIME AND MONEY
in compiling figures required by the
SOCIAL SECURITY ACT

OTHER BURROUGHS MACHINES FOR PAYROLL ACCOUNTING



All Burroughs payroll machines write four payroll records in one operation; many compute as they post and accumulate totals. Whatever the payroll accounting problem may be—Burroughs can provide equipment to handle the work with exceptional speed, ease and economy.

A typewriter that provides

4 PAYROLL RECORDS

in one writing

1 THE PAYROLL
2 EARNINGS RECORD
3 EMPLOYEE'S STATEMENT
4 PAY CHECK or pay envelope

With fast electric carriage return, electric shift to capitals, and convenient tabular control—this new Burroughs payroll typewriter writes four payroll records in a fraction of the time required by ordinary methods. It will pay you to see it, as well as other new Burroughs payroll machines. Telephone the local Burroughs office for a complete demonstration.

BURROUGHS ADDING MACHINE COMPANY • DETROIT, MICHIGAN

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

PHILIP LA FOLLETTE
Governor of Wisconsin.

"No part of this (public) power program is aimed at injuring the honest investor or his savings. On the contrary, the rights and savings of the prudent investors are entitled to and will receive protection."

MARVEL M. LOGAN
U. S. Senator from Kentucky.

"I regard former President Wilson as perhaps the most learned and one of the greatest men that America has ever produced . . . However, he overspoke himself quite frequently, and he overwrote himself occasionally."

MAJOR GEN. EDWARD M. MARKHAM
Chief of Army Engineers.

"The importance of this transportation to the commercial structure of the nation cannot be overstated, and is a manifest indication of the necessity for the continued improvement and active maintenance of our navigable waterways."

JAY ROBINSON
Magazine columnist.

"Two different conveyors lead through the law factory of Congress. One carries the ideas of the President and his advisers and brings them out as laws. The other transports the measures of individual congressmen and permits a limited number to be enacted."

PATRICK A. MCCARRAN
U. S. Senator from Nevada

"There has been too much laying aside of the individual judgment on the part of the representatives who were elected by a sovereign people. There has been too much laying aside of individual judgment which the people's representatives took an oath to exercise."

JOHN D. BATTLE
Executive Secretary, National Coal Association.

"The setting up of these Federal regional authorities, with vast and ill-defined and uncontrollable power, will spell the doom of the constitutional liberty of action of states, municipalities, industries, and individuals, and in the years to come these agencies will one day rule Congress, instead of being ruled by Congress."

EDITORIAL STATEMENT
Cleveland Plain Dealer.

"An army division in mutiny is ripe for the firing squad. The soldier who for personal advantage or for any other reason deserts the colors leaves plenty of mourners but few defenders. A position roughly similar is occupied by men in certain public utilities whose uninterrupted service is essential to the public health and welfare."

FROM A STATEMENT
Committee of Public Utility Executives.

"The private utility industry in a sense is already a form of public ownership under which, without making any contribution as to management and service and without sharing any of the risk of loss, government enjoys a tax revenue equal to that of the stockholders, and a degree of control and regulation elsewhere reserved to the ownership."

CE PRODUCTS

BOILERS
Sectional Header
Box Header
(two types)
Bent Tube
(four types)
Fire Tube
(four types)
Marine
(all standard types)
Electric
(Included in above list are all types known by the tradenames Heine, Walsh-Weidner, Casey-Hedges *and* Ladd*)*

STOKERS
Multiple-Retort Underfeed
Single-Retort Underfeed
(five types)
Traveling Grate
(two types)
Chain Grate
(three types)
(Included in above list are all types known by the tradenames Coxe, Green, Type E, Type K *and* Skelly*)*

PULVERIZED FUEL SYSTEMS
(for boilers and industrial furnaces)
Storage
Direct Fired
(CE Pulverized Fuel Systems, formerly known as Lopulco, *include* Raymond *Pulverizers)*

FURNACES
Dry Bottom
Slagging
Water-Cooled Walls and Screens

COMPLETE UNITS
Two standard designs, one for large plants and the other for medium-sized and smaller plants

•

Coordinated designs comprising any combination of boiler and firing equipment

ALLIED EQUIPMENT
Air Heaters
(Regenerative, Plate and Tubular Types)
Economizers
Oil Burners
Ash Conveyors
Ash Hoppers

C-E

SELECTION OF C-E EQUIPMENT

Assures—the most suitable equipment for your particular conditions . . . . properly coördinated overall design . . . . single responsibility for performance.

Result—dependable and low cost steam production.

COMBUSTION ENGINEERING COMPANY, INC.

200 MADISON AVENUE • NEW YORK

Canadian Associates: Combustion Engineering Corporation Ltd., Montreal A-270-b

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

The Symbol of an Idea

The P. T. C. Seal stands for an unique conception of co-operative promotion by an industry. Power Transmission Council's central idea is the advancement of planned power transmission, in the interest of the user of power, to the end that the right drive shall be used in the right place.

POWER TRANSMISSION COUNCIL
75 STATE STREET · BOSTON, MASSACHUSETTS

MODERN GROUP DRIVE PTC

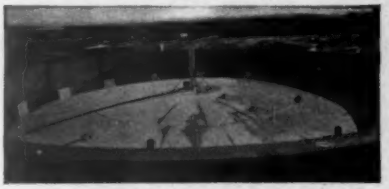
This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

GENERAL STEEL PLATE CONSTRUCTION
★
GRAVER
TANKS
WATER CONDITIONING EQUIPMENT

Modernize!

Prepare for expansion — look to the future. Check your present equipment. Bring it up to date!

Highest possible efficiency and smooth, trouble-free performance are demanded of all modern equipment. The Graver Organization has served American municipalities, public utility and industrial firms for three-quarters of a century and is thoroughly experienced in the construction of the very latest type of



Gas Holder Shell and Cover for Sewage Disposal Plant, Madison, Wis.

GAS HOLDERS
FLOATING COVERS
TANKS
Welded or Riveted Steel or Alloys
Shop Assembled or Erected on the job
CONDUITS
CAISSONS
ZEOLITE SOFTENERS
LIME AND SODA SOFTENERS
IRON REMOVAL PLANTS
STERILIZERS
SETTLERS
FILTERS for Mineral, Taste, Color, Odor Removal
PIPING, FITTINGS, ACCESSORIES

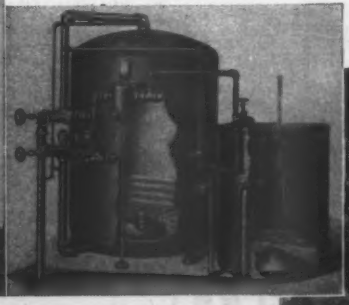
Two-Lift Gas Holder, Capacity 30,000 to 100,000 cu. ft.

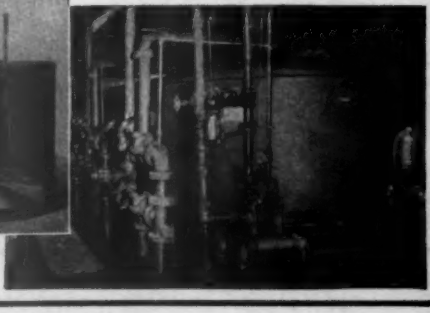
Tell us what you need and let us send Literature.

GRAVER TANK & MFG. CO., INC.

75 Years of Dependable Service

New York, N. Y. East Chicago, Ind. Chicago, Ill. Catasauqua, Pa.





LEFT—35-ft. Graver Gas Tank erected at Nappanee, Ind.
CENTER—Graver Zeolite Water Softener.
RIGHT—Graver Pressure Filter.

PUBLIC UTILITIES EVERYWHERE

USE DITTO *to Help Control Operations*

Every smudged copy, every error in copying, every overworked and overloaded typist—demonstrates again your need for Ditto. For Ditto eliminates such wastes.

Public Utilities everywhere are accurately controlling their operations by using Ditto for the speedy inexpensive reproduction of reports, accounting forms, repair instructions, operating orders, material lists, inventories, schedules and the like. In no other way can you make copies so quickly and so inexpensively.

• • •

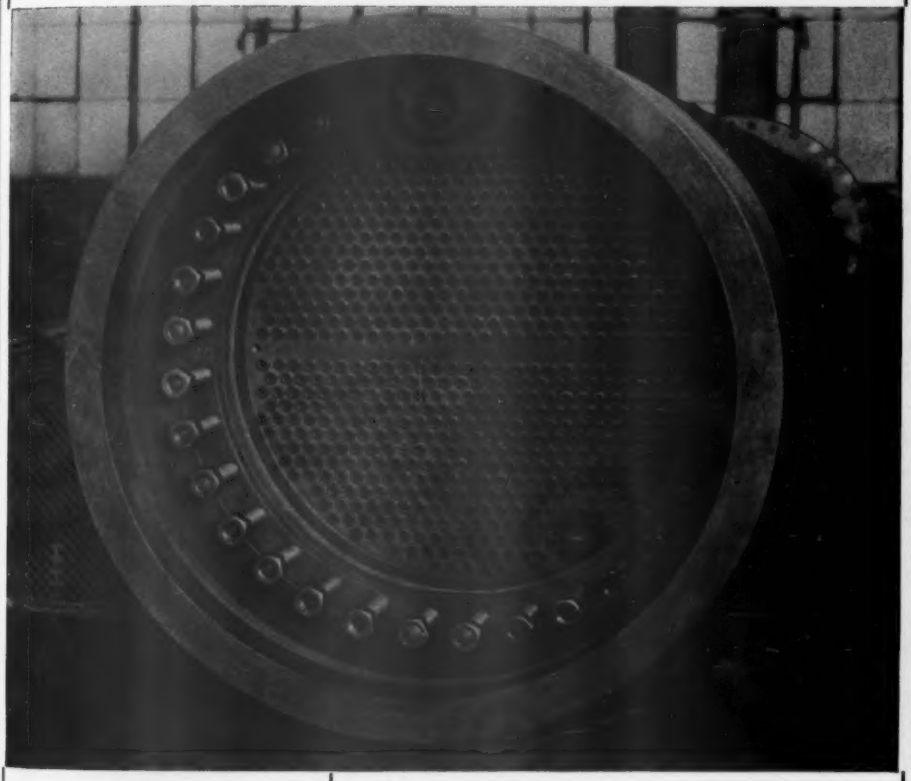
Write today for our new book "Copies—Their Place in Business." It tells fully just what Ditto is, and what it can do for you.

Ditto
INCORPORATED
2284 W. HARRISON ST.
CHICAGO, ILLINOIS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

"Lockhead" Heaters

"Lockhead" closure maintains tightness in feed water heaters operating at high pressure—seven years of service at 2,000 lb. per square inch, without leaks. In the "Lockhead" construction, the pressure load is transmitted by flexible diaphragm to a heavy headplate retained in position by a ring of shear blocks. The gasket load is held by studs of moderate diameter; easily dismounted and assembled with hand wrenches.



1650 lb. Pressure closed with 1½" Bolts

Capacity of heater shown: 500,000 lb. per hour. The gasket-diaphragm bolts are less than 1½" in diameter.

FOSTER WHEELER CORPORATION
165 BROADWAY, NEW YORK, N. Y.

FOSTER WHEELER

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

The sale of Modern Lighting for Modern Store Fronts should *begin at Home!*

Here's how Architect Geo. F. Sansbury and the Potomac Edison Company convince the merchants and property owners of Cumberland, Md., of the value of brightly lighted stores.

A modern store front demands modern illumination. And modern illumination means a heavier lighting load. There's a natural tie-up if there ever was one . . . new Pittco Store Fronts and modern lighting.

But to take best advantage of this tie-up . . . to convince prospects in your community of the soundness of store front modernization with better lighting . . . there's nothing more valuable than an actual example . . . on your own show rooms . . . of just what you mean.

You talk to a merchant . . . tell him the need for modern merchandising methods . . . plug away on the idea of a new store front with better lighting. And to clinch the argument, you say "Look at our own quarters down the street. There's a new front . . . illuminated in the modern manner. We practice what we preach . . . because we know it means better business!"

Put a new Pittco Front on your utility show rooms. Make them an example of what you preach. And when the Pittco Store Front Caravan, sponsored by Pittsburgh Plate Glass Company, comes to your territory, don't miss it. It shows you numerous actual examples of modern store front lighting. It offers you an opportunity to cooperate with a promotional effort that leads directly to more business for you. Contact our local branch for data about the Caravan . . . and for any cooperation on store fronts you may need in your work.

Paint. PITTSBURGH. Glass
PLATE GLASS COMPANY

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

IF IT'S TYPEWRITERS, OR ABOUT TYPEWRITERS

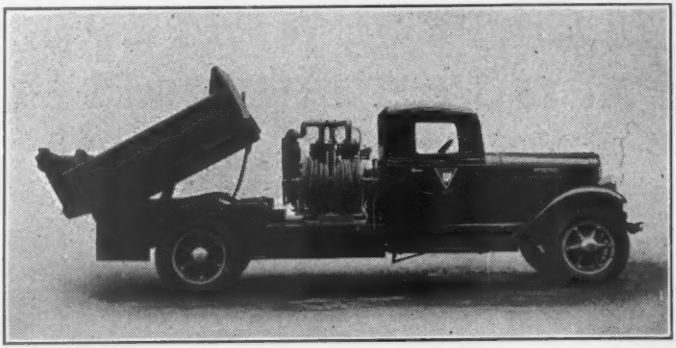
...CALL ROYAL

● If you need new typewriters, extra typewriters or trained girls to operate them . . . if your supply of ribbons, carbon papers or other accessories is running low . . . if your machines need adjustment of any kind . . . call your local Royal representative. A skilled, experienced man will know your requirements; his office is ready to serve your office at a moment's notice. ● Royal Typewriter Company, Inc., 2 Park Ave., New York City. Factory: Hartford, Conn.

WORLD'S LARGEST COMPANY DEVOTED EXCLUSIVELY TO THE MANUFACTURE OF TYPEWRITERS

ROYAL WORLD'S NO. 1 TYPEWRITER

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



DAVEY Compressor Trucks

WILL CUT YOUR MAINTENANCE COSTS

Because Davey Compressors take their power from the truck engine, they require only about one-third of the truck capacity. The rest may be used in a variety of ways in handling maintenance work.

So you have a dual-purpose unit, which may be used full time, either as a truck or as a compressor. You do not need a second truck to carry a compressor to the work.

Some Distinguished Owners:

Boston Consolidated Gas Company
New York Power and Light Corporation
Michigan Bell Telephone Company
Iroquois Gas Corporation, Buffalo
City of Syracuse, N. Y., Div. of Water
Connecticut Light and Power Company

Also, because compressed air is always available, your men will use time-saving air tools to do many smaller jobs which would otherwise be done at much greater expense by hand.

Davey truck-driven compressors are thoroughly proven in six years hard service. Let us tell you more amout them.

DAVEY COMPRESSOR CO., Inc.
KENT, OHIO

What are you doing about

STREET ILLUMINATION?

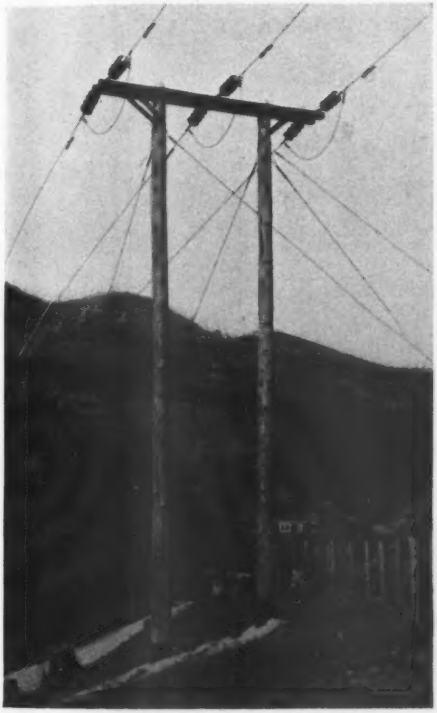
If, 'til now, you've taken no real action to satisfy public demand for better street lighting and to cash in on the load building opportunity . . . and, if you're interested in from 30 to 50 per cent improvement in effective lighting that can be made at very small cost . . . you'll want details of the Silvray "Multiplex" Processing plan. Many Utilities have found it a very profitable asset. You will, too.

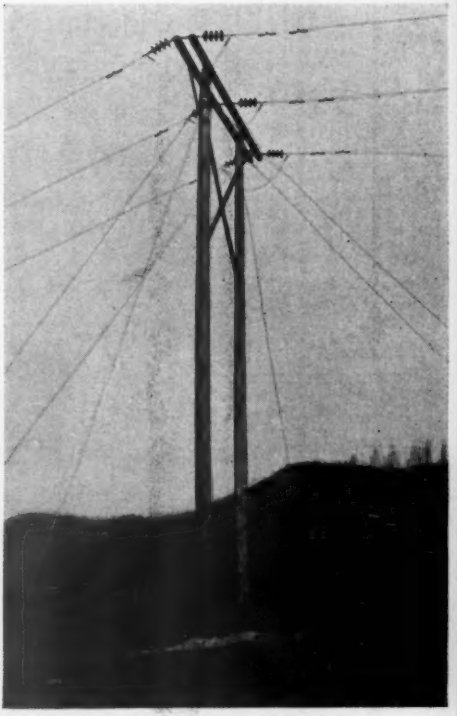
A note, on your letterhead, brings you complete information.

AMERICAN STREET ILLUMINATING COMPANY
"Backed by 59 Years' Street Lighting Experience"
261 North Broad Street Philadelphia, Pennsylvania

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

HOOSIER BUILT





Two views of 44 Kv. Transmission Line erected between Slab Fork and Milam, West Virginia, for the Appalachian Electric Power Company

CONSTANT IMPROVEMENT IN ORGANIZATION AND METHODS

HOOSIER ENGINEERING COMPANY

CHICAGO 46 SO. 5TH ST., COLUMBUS, OHIO NEW YORK

Canadian Hoosier Engineering Company, Ltd.
Montreal

ERECTORS OF TRANSMISSION LINES

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

TITAN

SNAP ACTION THERMOSTATS

To specify a Titan Snap Action Thermostat is to specify a device tested by wide field experience . . . proven by years of use under the most severe conditions with all types of gas from Canada to the Canal Zone . . . extraordinarily sensitive yet rugged, unfailing in operation, practically fool-proof and trouble-proof, virtually free from the necessity of servicing. Titans are already standard equipment on the majority of storage heaters approved by the American Gas Association. They are available for any size from the smallest to the largest. Write for details.

THE TITAN VALVE & MANUFACTURING COMPANY

Thermostats :: Safety Pilots :: Relief Valves

9913 ELK AVENUE, CLEVELAND, OHIO

This page is reserved under the MSA PLAN (Manufacturers Service Agreement)

Tough going for the men is easy going for a Cletrac

Stringing cable is no job for a fair-weather outfit. The going's tough, as any lineman will tell you . . . uphill and down, through mud and swamp, across the country as nature made it without benefit of trail or road.

It's a job for a Cletrac . . . the crawler tractor that's built to smile at hard going . . . with the traction, the balanced design, the power, and stamina to get in and out of the tough spots.

With controlled differential steering, Cletracs are more easily controlled, surer footed in tight places, safer on the hills.

Investigate. There are fifteen models, from 22 to 94 horsepower, either gasoline, tractor fuel, or Diesel powered, and with a complete line of working equipment.

THE CLEVELAND TRACTOR COMPANY · CLEVELAND, OHIO

Cletrac
Crawler Tractors

The only tractors with controlled differential steering that keeps both tracks pulling at all times . . . on the turn as well as on the straightaway

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

RILEY PULVERIZERS
in Central Stations

Plant after plant in the Public Utility industry has swung to Riley Pulverizers . . . definitely establishing Riley as one of the leaders

●

A few Public Utilities using Riley Pulverizers . . .

Union Electric Light & Power, Cahokia . . . Repeat Order
Edison Electric Illuminating Co., Boston . . . Repeat Order
Hartford Electric Light Co., Conn. . . . Repeat Order
Potomac Electric Power Co., Washington, D. C.
Oklahoma Gas & Electric Co. . . . Repeat Order
Stamford Gas & Electric Co., Conn.
City of Springfield, Ill.
City of Tacoma, Wash.
Savannah Electric Co., Georgia
Dubuque Electric Co., Iowa
Central Iowa Power & Light Co.
Lynn Gas & Electric Co., Mass.
Upper Michigan Power & Light Co.

●

RILEY STOKER CORPORATION
WORCESTER, MASS.

BOSTON NEW YORK PHILADELPHIA PITTSBURGH BUFFALO CLEVELAND DETROIT TACOMA
ST. LOUIS CINCINNATI HOUSTON CHICAGO ST. PAUL KANSAS CITY LOS ANGELES ATLANTA

COMPLETE STEAM GENERATING UNITS
BOILERS - SUPERHEATERS - AIR HEATERS - ECONOMIZERS - WATER-COOLED FURNACES
PULVERIZERS - BURNERS - MECHANICAL STOKERS - STEEL-CLAD INSULATED SETTINGS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

COPPERWELD NON-RUSTING

Fence Fabric & Barbed Wire

COST LESS BY THE YEAR

because **they are made from the same non-rusting material used so successfully for over a quarter of a century by railroads, public utilities, telephone companies, and other industries as conductors, and guy and messenger strand. The wire, from which Copperweld fence fabric and barbed wire is made, has a tough steel core inseparably molten-welded to a THICK outer layer of pure corrosion-resisting copper that can't wear off and will not rust. That's why Copperweld . . . .**

NEVER NEEDS PAINTING

Please write for an interesting folder on public utility fencing.

COPPERWELD STEEL COMPANY

Glassport, Pa.

COPPER · BRONZE · COPPERWELD RODS, WIRE, and STRAND

This page is reserved under the* MSA PLAN *(Manufacturers Service Agreement)

Depreciation from a New Approach . . .

PRINCIPLES *of* PUBLIC-UTILITY DEPRECIATION

By PERRY MASON

●

"A thorough, comprehensive and remarkably well-written treatise on the principles of public-utility depreciation."—W. C. MULLENDORE, *Executive Vice-President, Southern California Edison Company.*

Price $1.00

Published as the first of a series of monographs on accounting principles by

AMERICAN ACCOUNTING ASSOCIATION

6525 Sheridan Road, Chicago

TAGliabue INSTRUMENTS

TAGliabue offers a broad selection of instruments for measuring and controlling the energy factors so necessary for the proper operation of equipment. Ask for details and descriptive catalog of any of the following TAG Instruments:

RECORDING THERMOMETERS
RECORDING PRESSURE GAGES
INDUSTRIAL THERMOMETERS
PYROMETERS FOR INDICATING, RECORDING AND CONTROLLING
FLOW METERS
INTEGRATING STEAM METERS
CONTROLLERS FOR TEMPERATURE, PRESSURE, LEVEL, FLOW
MERCURIAL VACUUM GAGES
CHEMICAL THERMOMETERS • HYDROMETERS
OIL TESTING INSTRUMENTS • STEAM TRAPS

C. J. TAGLIABUE MFG. CO.
Park & Nostrand Ave's., Brooklyn, N. Y.

Another step ahead

in ELECTRIC COOKERY

L&H Calrod provides the world's fastest, flameless cooking heat. Utensils rest directly upon the FLAT thrift coils. L&H Electric Ranges have the exclusive "EQUALIZED HEAT" oven that makes perfect results a certainty.

L&H Advanced ELECTRIC RANGES

A. J. LINDEMANN & HOVERSON CO.

Sealed in rust-proof metal, L&H Calrod is protected for a lifetime of normal household use. Find out how the new L&H Electric Ranges pave the way to increased sales.

MILWAUKEE, WIS.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

The CLEVELAND BABY DIGGER

Sets the Pace for Economic Pipe-Laying—Meeting Completely Today's Trench Construction Demands

You, like all alert men in the utility field, are seeking cost saving equipment.

The trend of the times is toward the use of modern efficient mechanical equipment. For the trench digging operation you will find the Cleveland Baby Digger standard value.

Unsurpassed for continuous low maintenance and operation costs and general adaptability for use on the maximum percentage of your work. Add to these characteristics, its dependability and ruggedness and you have the ideal equipment for time and money saving.

Fits the Job—Gets to the Job—Does the Job

Today's Cleveland Baby Digger Model 95 is the complete answer to Public Utility requirements.

So compact and easy to handle, it affords maximum machine-usage in the crowded conditions of cities and towns and yet, so rugged and powerful it handles the most difficult digging with minimum service interruptions. With the "Baby Digger" you dig more trench in more places at least cost. Let us furnish details and specifications.

Another important "Cleveland" idea that eliminates hold-ups, cuts waste time and increases usability — high-speed, low-cost transportation via special trailer. Baby Digger loads and unloads in 10 to 15 minutes and travels from job to job at truck speed.

THE CLEVELAND TRENCHER COMPANY

"Pioneers of the Small Trencher"

20100 St. Clair Avenue Cleveland, Ohio

The CLEVELAND BABY DIGGER Model 95

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

ALCOA ALUMINUM

Construction men have learned to respect the high standards established for lines built with Aluminum Cable Steel Reinforced. They know that added care in building a line means far fewer emergency calls after it is in service. The use of armor rods and Stockbridge vibration dampers eliminates trouble from flashovers, abrasion and vibration fatigue.

ALUMINUM COMPANY OF AMERICA

2134 Gulf Building, Pittsburgh, Pa.

ACSR

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

A-E-CO

TAYLOR STOKER UNITS
TAYLOR STOKERS
FURNACES *(Water-Cooled)*
ASH HOPPERS

UNCOVER THE FACTS!

Ride With Changing Coal Prices

Coal burning equipment should be able to burn coal from any field so that you can shift your purchases to take advantage of changes in coal prices. Taylor Stokers, because of their design, have an outstanding reputation for burning a wide variety of coals. Capitalize on this fuel flexibility!

Division: AMERICAN ENGINEERING COMPANY
PHILADELPHIA, PENNSYLVANIA

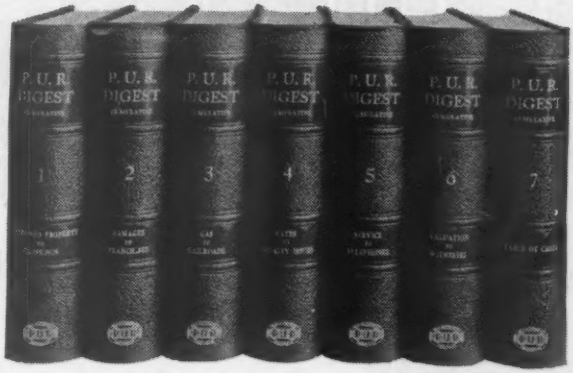
Other Products: A-E-CO LO-HED MONORAIL ELECTRIC HOISTS, A-E-CO HELE-SHAW PUMPS, MOTORS AND TRANSMISSIONS, A-E-CO MARINE AND YACHT AUXILIARIES

This page is reserved under the MSA PLAN (Manufacturers Service Agreement)

P. U. R. Digest

CUMULATIVE

A DIGEST THAT IS SERVICED



Public Service Law and Regulation

The only Complete Digest in this field

A Work of Primary Authority

Containing the Decisions and Rulings of the

United States Supreme Court
United States Circuit Courts of Appeals
United States District Courts
State Courts
Federal Regulatory Commissions
State Regulatory Commissions
Insular and Territorial Regulatory Commissions

A SHORT CUT COVERING FIFTY YEARS

AN EXHAUSTIVE SURVEY OF THE LAW

SIMPLE ALPHABETICAL CLASSIFICATION OF SUBJECTS

A GREAT REVIEW

A GREAT SERVICE

A Life-Time Digest Kept up to Date

Write for price and payment plans

PUBLIC UTILITIES REPORTS, INC.

Tenth Floor, Munsey Building
Washington, D. C.

DEERE & COMPANY
MOLINE, ILLINOIS

Kinnear Mfg. Co.
Columbus, Ohio
Gentlemen:

In 1905, thirty-two years ago, we installed 25 Kinnear Steel Rolling Shutters on the first floor of our St. Louis Warehouse Sales Branch. These doors have seen continuous service all these years and have been very satisfactory.

...ently our attention has been calle... to these doors and we ha...

...Gentlemen:
...In 1905, thirty-two years...
...first floor of our St. Louis ...
...Kinnear service all these years and have ...
...Recently, our attention has been called to these doors and we find they are in need of repairs. At this time, 15 of these doors, 10' wide by 9'4-5/8" high, should be repaired or replaced. We have asked a local contractor, the Construction Specialties Co., to check over repairs to the doors and we find that cost for repairing the doors is excessive and may warrant replacing the doors either with rolling shutters or some other type of door.
We are inclosing a plan, carried to indicate the doors in question, together with prints of the original details.
We shall be pleased if you will have your authorized agent or someone from your factory visit our building at 2020 North Broadway, St. Louis, Missouri and give us your opinion as to whether the original doors should be repaired or replaced. We would appreciate prices both ways.
As an alternate for the 2 doors on the east side of the building, we would like an estimate price on your Kinnear Roll-UP Door of high-lift type, either wood or steel. We feel that the 11 doors to the north at the railroad track should be Rolling Steel Doors.
Kindly instruct your representative to confer with our Mr. O. J. Schulz, Office Manager at St. Louis, and send us a copy of report and quotations.
Yours very truly,
DEERE & COMPANY
Engineering Dept.
A. E. Kelly
E. E. Keller

WE'LL be on hand at the Kinnear exhibit in the Missouri Building at the Centennial Exposition in St. Louis to celebrate with you the One Hundred Years Ago John Deere Gave to the World the Steel Plow

How's this for a Service Record?

Think of it! 32 years of continuous, efficient door service. And then, through Kinnear's reliable, nationwide facilities the doors that may have been damaged can always be reconditioned with genuine Kinnear replacement parts . . . made ready for many more years of use. That's service which speaks for itself. Let us show how Kinnear Upward Acting Doors can economically solve your door problem.

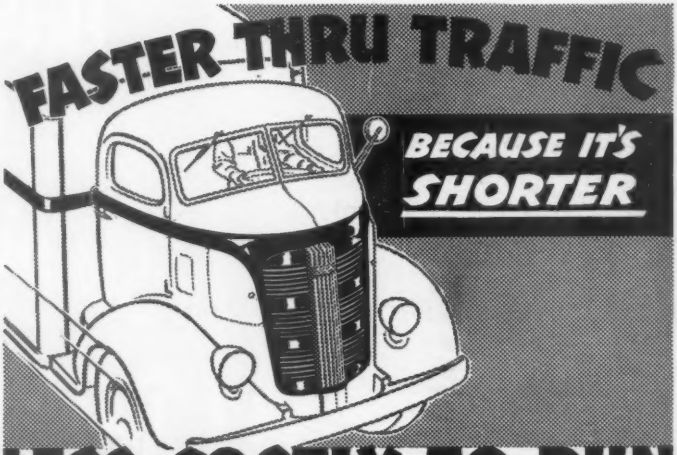
No matter what your needs may be in the way of doors, for fire or service purposes, for residence garage or large industrial installation, Kinnear will accurately engineer and construct a door which will best serve the purpose . . . Send for your free copy of our 1937 catalog. It shows the different types of doors we manufacture and our capacity for building one for any opening

Offices and Agents in Principal Cities.

The KINNEAR Manufacturing Company
2060-80 Fields Ave. Columbus, Ohio

KINNEAR ROLLING DOORS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



LESS COSTLY TO RUN

BECAUSE IT SAVES TIME!

Saving time saves money. To drive a new cab-over-engine GMC is to experience an entirely new *traffic ability* not found in other trucks. Sharper turning, over-car-tops vision and shorter over-all length facilitate quicker traffic travel. Try it!

QUALITY AT PRICES LOWER THAN AVERAGE

THE TRUCK GMC OF VALUE

Time payments through our own Y. M. A. C. Plan at lowest available rates

GENERAL MOTORS TRUCKS & TRAILERS

GENERAL MOTORS TRUCK & COACH
DIVISION OF
YELLOW TRUCK & COACH MANUFACTURING COMPANY, PONTIAC, MICH.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

BERLOY *Tailored Steel . .*

BERGER TAILORED STEEL PRODUCTS SERVE THE WORLD

STEEL SHELVING

Especially strong, durable, easy to adjust, because of unusual features. Hundreds of convenient combinations can be arranged to meet varying requirements of every type of business and industry. Large number of types and sizes carried in stock.

STEEL LOCKERS

Scientifically designed, handsomely finished—strong, rigid, durable—built for a lifetime of heavy service. Offer a comprehensive group of features that permit accurate and economical adaptation of BERLOY Lockers to ALL your clothing storage requirements.

SPECIAL STEEL FABRICATING JOBS

For over 50 years, Berger has specialized in the design and production of sheet metal products for manufacturers. BERLOY offers wide experience, expert knowledge of design and unexcelled facilities for the complete fabrication of sheet metal.

BUILDS BEAUTY AND UTILITY INTO MODERN OFFICE FURNITURE

● BERLOY Steel Office Furniture is modern, beautiful, and durable. It offers, at reasonable price, the highest quality that can be attained in fine office equipment. BERLOY Office Equipment retains its character, strength, and beautiful finish despite the hardest usage over a long period of years. A complete range of desks, cases, cabinets, files, wardrobes, shelf units, etc., is immediately available to suit your requirements. A BERLOY Office Equipment engineer will gladly discuss your problems with you, offering helpful, practicable suggestions for the efficient, economical outfitting of your offices. Write now!

BERLOY

THE BERGER MANUFACTURING COMPANY

CANTON, OHIO

Subsidiary of Republic Steel Corporation

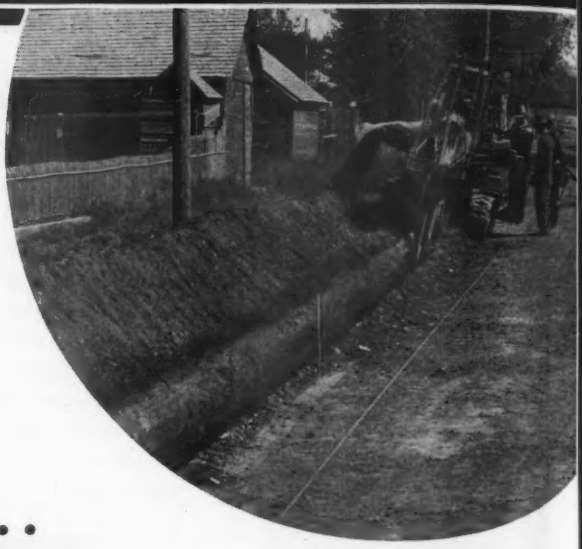
This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Buckeye DITCHERS

Model 11 digs trench 11½" to 22" wide, depths to 5½'.

•

Model 12 digs trench 14½" to 24" wide, depths to 5½'.



for FAST... ACCURATE.. *Low-cost ditching*

ORIGINATORS *of the* WHEEL-TYPE DITCHER

Put a Buckeye Ditcher on the job and you know that the trench will be completed on schedule and at minimum cost. No soil condition short of rock is too difficult and you have available the power and the choice of digging speeds that make remarkable savings in time. When you buy a Buckeye you are getting a machine into which has gone all the engineering skill and experience that comes from well over a third of a century of building trench excavating machines, in use wherever pipelines are laid, the world around.

BUCKEYE TRAILER

For ease in transporting Buckeye Ditchers, investigate the advantages of these rugged, easily loaded trailers—built in 6, 10, and 15 ton capacities.

THE BUCKEYE TRACTION DITCHER CO.,
FINDLAY, OHIO

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

FLASHLIGHTS *for* INDUSTRY

"EVEREADY"
Industrial Flashlights
No. 3251
No. 3351

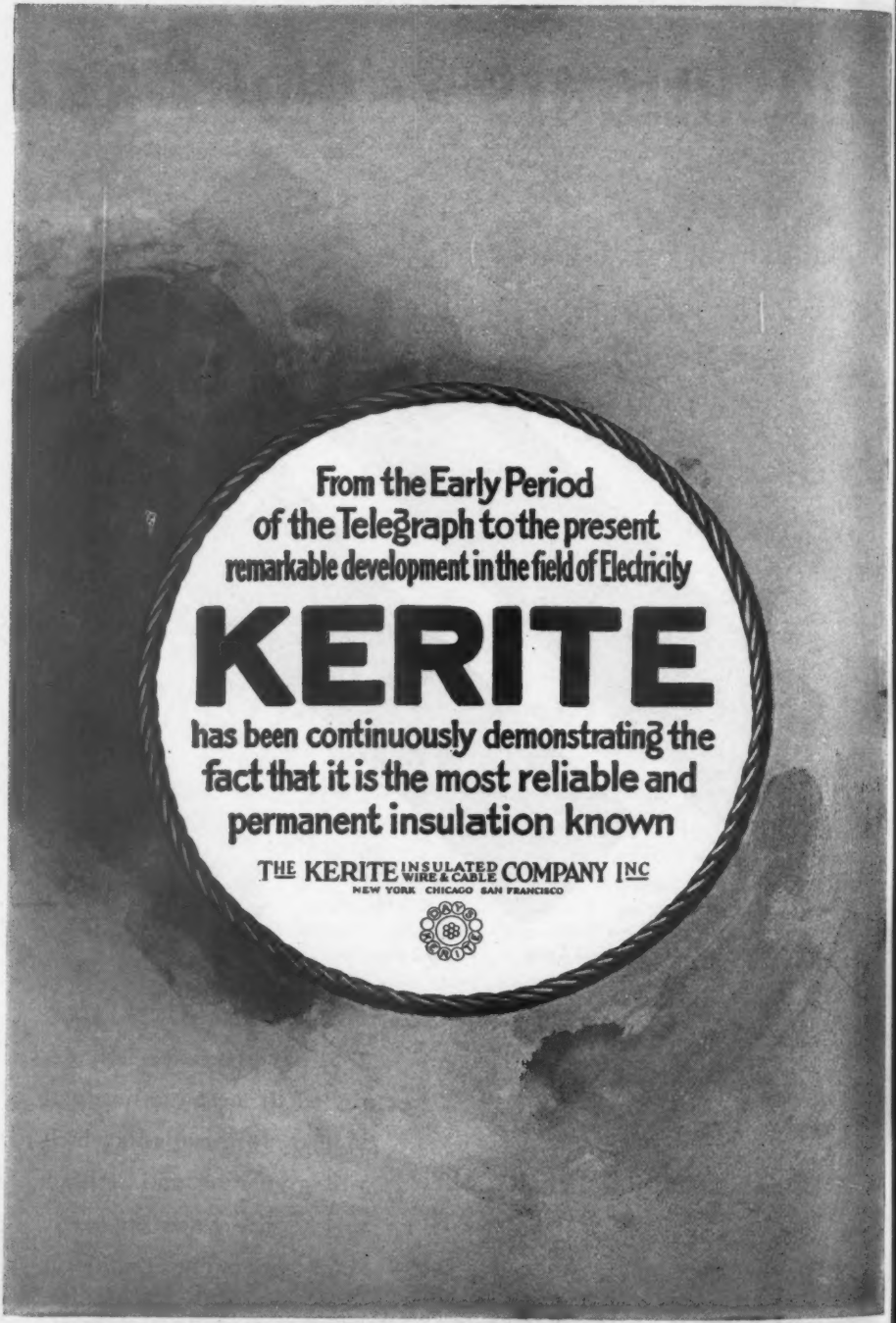
No. 3351
Three-Cell Type

No. 3251
Two-Cell Type

"Eveready" Industrial Flashlights No. 3251 and No. 3351 have been specially designed to meet the needs of industry for flashlights which will give long and satisfactory service under unusually severe operating conditions.

NATIONAL CARBON COMPANY, INC.
General Offices: New York, N. Y.
Branches: Chicago, San Francisco
Unit of Union Carbide UCC *and Carbon Corporation*

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*


From the Early Period
of the Telegraph to the present
remarkable development in the field of Electricity
KERITE
has been continuously demonstrating the
fact that it is the most reliable and
permanent insulation known
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

HYDRAULIC TURBINES

FRANCIS AND HIGH SPEED RUNNERS

★ Penstocks
★ Butterfly Valves
★ Power Operated Rack Rakes
★ Gates and Gate Hoists
★ Electrically Welded Racks

NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY
Hydraulic Turbine Division
NEWPORT NEWS, VA. **90 BROAD ST., NEW YORK, N. Y.**

The FELT in the HILL-HUBBELL Process GIVES

EXTRA PROTECTION

MAKES STEEL PIPE LAST LONGER

We use a bonded wrapping of bitumen impregnated FELT, most often inorganic, in the HILL-HUBBELL Process of coating STEEL PIPE for a very definite reason. Buried pipe lines are subject to mechanical forces that affect the coating, and we concur with eminent authorities when they say that pipe coatings should have a wrapping of FELT for shielding and reinforcing. The primary purpose of coating STEEL PIPE is to WATER-PROOF it and to insulate it from electric currents. Bonded FELT gives additional strength and prevents soil-stress of the coating—therefore EXTRA protection. However, FELT must be PROPERLY APPLIED to serve its purpose. The HILL-HUBBELL Process applies FELT MECHANICALLY in the most efficient manner known today. No matter how many miles of STEEL PIPE there are in an installation, each and every inch is properly protected.
BITURINE ENAMEL, an all-coal tar product applied by the HILL-HUBBELL Process, gives MAXIMUM protection.

These coats of enamel, one wrapping of Felt, and one covering of kraft paper are applied mechanically at ONE time with ONE labor cost. There are no bubbles, skips, or holidays with the HILL-HUBBELL Process.

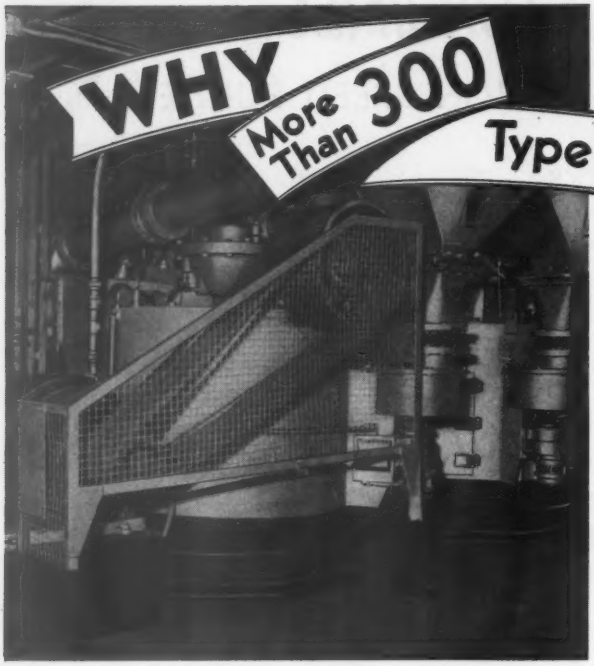
BUY STEEL PIPE, Mill Coated and Wrapped at any of these Mills

Central Tube Company
Jones & Laughlin Steel Corporation
National Tube Company
Republic Steel Corporation
Spang, Chalfant & Co., Inc.
The Youngstown Sheet & Tube Company

This bulletin with many illustrations "shows how" it is done,—also contains prices. Write on your letterhead for copy.

GENERAL PAINT CORPORATION
HILL, HUBBELL & CO. • Division • Cleveland, Ohio
TULSA • SAN FRANCISCO • LOS ANGELES • OAKLAND • PORTLAND • SEATTLE • SPOKANE

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



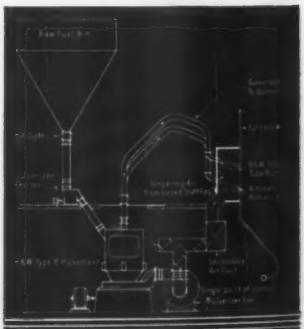
WHY More Than 300 Type "B" Pulverizers Have Been Bought for Direct Firing!

B&W Pulverizers having a total capacity of over 2600 tons of coal per hour have been bought in the United States alone for the direct firing of boilers. All these pulverizers are of the same type and many of them have been in service for periods of one to seven years and have proved conclusively that they—

Can be depended upon to give reliable service,
Can handle coal of any grade or moisture,
Respond readily to load changes,
Maintain fineness,
Maintain capacity,
Provide a rich starting mixture,
Are not damaged by tramp iron,
Are adapted to fully automatic operation.

These and other reasons why the Type B Pulverizer is the logical choice for direct-firing pulverized-coal systems are fully discussed in Bulletin G-19, which also presents the many advantages of the B&W Direct-Firing System. For your copy simply return the coupon.

THE BABCOCK & WILCOX COMPANY
85 LIBERTY STREET, NEW YORK, N. Y.



THE BABCOCK & WILCOX COMPANY
85 LIBERTY STREET NEW YORK, N. Y.
Please send ..... without obligation ..... a copy of the "B&W Direct-Firing System"
Name .....
Company .....
Street .....
City ..... State .....

BABCOCK & WILCOX

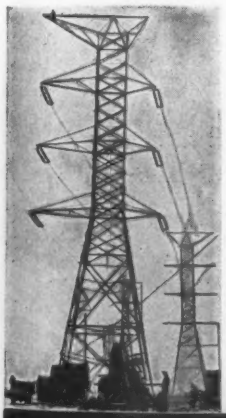
This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

HERE!

WILLIAMSPORT STRAND is here to help you..

Cut handling costs
Save on replacements
Keep lines in order 100 %

Going up quicker, doing its work well and staying up longer . . . that is the service of Williamsport Strand. And it will serve you as it serves others: *economically.* It's accurately made, this Williamsport Strand, by men and machines devoted to no other work but turning out perfect strand. Heavily galvanized, secure against weather and strong as strand can be. Williamsport Strand requires less attention . . . with that saving, it costs you less money.



Make your next strand order: Williamsport. And remember that Williamsport's method of preforming gives the utmost in quality —easier handling wire rope or strand—in Williamsport "Form-Set."

WILLIAMSPORT WIRE ROPE CO.

122 SO. MICHIGAN AVE., CHICAGO—WILLIAMSPORT, PA.
Offices in All Principal Cities

Joslyn Manufacturing & Supply Co. 20 N. WACKER DRIVE, CHICAGO, ILL.
NATIONAL DISTRIBUTORS FOR WILLIAMSPORT STRAND

DAVEY LINE CLEARING SERVICE

Davey Men are Local

Many members of Davey line clearing squads have their homes and families and are permanent members of the communities in which they live and work. This means that they are:

- *Acquainted in the Community*
- *Familiar with the Territory*
- *Aware of Local Conditions*
- *Constantly Available*
- *Ready for Emergencies*

Home owners and tree owners are ready to accept Davey men and to entrust to them the care of their trees. It all makes for the best possible public relations. Inquire about Davey service.

THE DAVEY TREE EXPERT CO. KENT, OHIO

DAVEY TREE SERVICE

PIPE STOPPERS

GOODMAN — USED SINCE 1897 — 2" HANDLE & LOCKING SLEEVE — GAS MAIN STOPPER

All Types

PIPE LINE SUPPLIES

Goodman Stoppers
Gardner-Goodman Stoppers
Goodman-Peden Stoppers
Goodman Cylindrical Stoppers
Bags—Rubber, Canvas Covered
Plugs, Service & Expansion
Pumps
Masks
Brushes
Tape—Soap & Binding

Catalogue mailed on request.

SAFETY GAS MAIN STOPPER CO.
523 Atlantic Avenue
Brooklyn, New York

HAYS
A GOOD NAME
ON BRASS

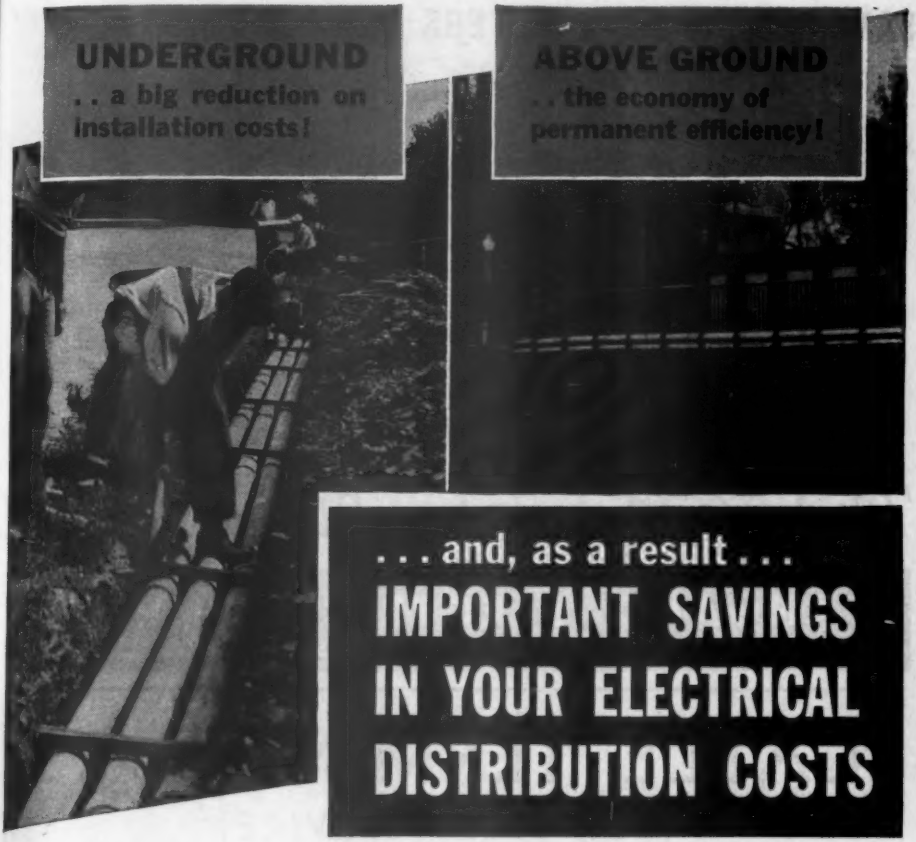
GOOD products, good service and fair business tactics built a good name, HAYS. Since 1869 we have striven in every way to make folks like to do business with Hays. The name, Hays, impressed on a product is your assurance of first grade quality—it is our mark of responsibility for the good performance of that product thru the years. Our more than 66 years of experience can be at your fingertip. Just write for catalogues on Water and Gas Products and the Hays Copper Plumbing Method.

A Good Concern to Deal With

HAYS MFG. CO. ERIE, PENNA.

SINCE 1869
BRASS for WATER and GAS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



. . . and, as a result . . .

IMPORTANT SAVINGS IN YOUR ELECTRICAL DISTRIBUTION COSTS

JM

Johns-Manville

TRANSITE ELECTRICAL CONDUIT

OF the many products specifically designed by Johns-Manville to lower cost and increase efficiency of electrical distribution, Transite Conduit is a striking example of how well this purpose has been accomplished.

Made of two imperishable materials—asbestos and cement, Transite Conduit is strong, permanent, corrosion-resistant, fire- and weather-proof.

UNDERGROUND, Transite's strength permits installation without an envelope. "Concreting-in" costs are eliminated—installation savings large. And Transite's high resistance to corrosion assures virtual freedom from maintenance.

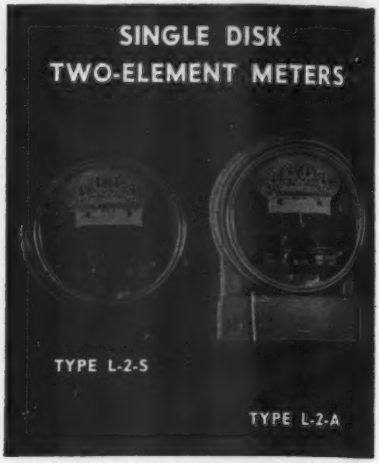
ABOVE GROUND—in any exposed location—Transite Conduit is weatherproof. Incombustible, it is unharmed by smoke or corrosive fumes. Hence, it offers the economy of permanent efficiency, at negligible upkeep, throughout its years of service.

Utility executives concerned with lowering electrical distribution costs . . . *and keeping them low* . . . will find it profitable to get all the facts on the many advantages of this modern conduit. For details, address Johns-Manville, 22 E. 40th St., N. Y. C.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

SANGAMO TYPE L-2 METERS

The Type L-2 two-element meters comprise two complete electro-magnetic elements driving a single disk. They are designed for modern "A" and "S" mountings, thus combining convenience in installation with a minimum of space requirements. Electrical characteristics meet all the requirements for modern meter accuracy and performance.



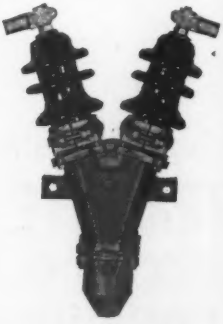
Modern Meters for Modern Loads!

SANGAMO ELECTRIC COMPANY
SPRINGFIELD, ILLINOIS

CABLE TERMINATORS
(FOR EVERY SERVICE)

The prime requirement of sealing against moisture has been met by making Terminators oil, vacuum, and water-tight.

Ask For Price List No. 65-I



Delta-Star Electric Co
2400 BLOCK FULTON STREET, CHICAGO, ILL.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Frigidaire Utilities

SETTING NEW SUMMER SALES RECORDS!

POWERFUL MID-SUMMER

SELECTIVE SELLING CAMPAIGN

BOOSTS HOT WEATHER SALES SKYWARD!

■ Scores of Frigidaire utilities are cheering the sales magic of Frigidaire's spectacular 3-phase Mid-Summer Selling Campaign! It's "clicking" all over America!

Dramatic showmanship, sensational displays, and pre-tested selling ideas are crowding utility showrooms with eager refrigerator buyers! Making sales history! Skyrocketing sales higher than ever!

Intriguing and sales-compelling is this Frigidaire hot weather campaign that stresses the Greater Ice-Ability of Frigidaire. It's amazing—this cold-making ability of the Meter-Miser, simplest of all refrigerating mechanisms. Its remarkable economy while keeping food safer, fresher, longer—enables Frigidaire utilities to offer *Proof* of outstanding refrigerator performance that sells thousands daily!

Yes, Frigidaire utilities have a superabundance of selling advantages. Only Frigidaire has the Meter-Miser! The new All-Metal Quickube Tray with Instant Cube-Release! The Food-Safety Indicator with dial on outside of cabinet door! The Automatic Tray Release! The 9-Way Adjustable Interior! F-114 refrigerant! Product of General Motors!

Can you wonder longer why Frigidaire offers utilities the greatest opportunity in the field for building sales, load, and goodwill?

FRIGIDAIRE
MADE ONLY BY GENERAL MOTORS

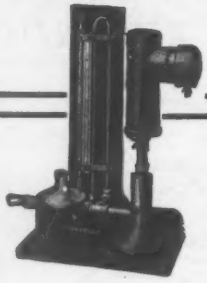
FRIGIDAIRE DIVISION, GENERAL MOTORS SALES CORPORATION, DAYTON, OHIO

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

CONNELLY CALOROPTIC

Accurate Direct Reading Type

REMOTE SIGNAL SYSTEM



This simplified BTU Indicator is a dependable instrument for determining the heat value of any kind of gas, including artificial, natural, mixed, propane and butane. Reading gives BTU directly without lag, corrections or calculations. It is useful in production operations and many other special applications.

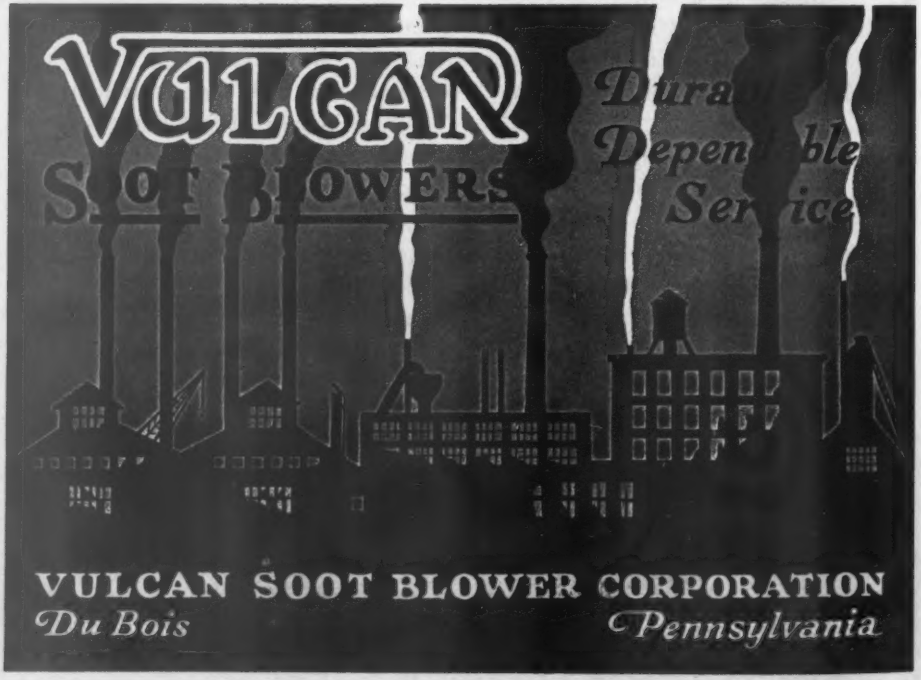
Illustration shows Caloroptic . . . including pressure regulator, U-gauge and burner unit . . . fitted with a photronic cell for use with Distant Signal unit. This unit may be located in distant office or control room, and is provided with lights and alarms according to method of protection desireo.

Connelly Products: Iron Sponge and Unmixed Oxide—Regulators for Station, District, Service and Appliance—Back Pressure Valves—Distribution Supplies.

Write for Bulletin No. 405-B-1

CONNELLY IRON SPONGE AND GOVERNOR COMPANY

CHICAGO, ILL. *New England Representative: T. H. Piser, Wellesley Hills, Mass.* ELIZABETH, N. J.



VULCAN SOOT BLOWER CORPORATION

Du Bois *Pennsylvania*

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

A New Low-Cost Foam Tool!

Combines Water, Solution and Air To Form Fire-Smothering Foam

Public utilities are welcoming this revolutionary larger-capacity foam equipment for flammable liquid fires.

The specially designed PHOMAIRE Play Pipe connects to your hose line (¾" to 2½"). When the water is turned on, PHOMAIDE, a new foam-making solution carried in a Hip Pack, and air are automatically drawn into the water stream in the proper proportions to form foam.

There are no complicated preliminaries, no confusing adjustments, no moving parts. And only one man is required at the Play Pipe.

Less than 20 gallons of water at a pressure of 75 pounds or more are required per minute. This is the only efficient foam unit available for small lines. One gallon of Phomaide Solution makes 350 gallons of foam. 300 to 400 gallons per minute may be continuously produced by merely pouring additional solution into the Hip Pack.

This is NEWS. Without obligation, ask for descriptive literature, prices and a demonstration of the Phomaire Unit illustrated at the left. Don't wait! Mail your request now.

Get the Latest Foam Equipment

Phomaire PLAY PIPE and Phomaide SOLUTION

developed, made and sold by

Pyrene Manufacturing Company
NEWARK NEW JERSEY
ATLANTA KANSAS CITY CHICAGO SAN FRANCISCO

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

The Field Performance Of This Burnham Gas Boiler Equals Its Shop Test

JUST naturally no boiler manufacturer deliberately handicaps a shop test. Everything is done under the most favorable conditions. If then a boiler can in actual field operation, equal the shop test, it makes you stop and think.

As a matter of fact the Burnham was approved under the new A.G.A. requirements.

There are very definite reasons for this boiler's fine performance. Send for Catalog. Get the facts. See for yourself.

Burnham Boiler Corporation

IRVINGTON, NEW YORK
ZANESVILLE, OHIO

Representatives in All Principal Cities of the United States and Canada

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

NOW,

a new trend in industry

THAT AUTOMATICALLY CONTROLS A WHOLE PROCESS, FACILITATES PRODUCTION, AND INSURES A UNIFORM PRODUCT

WHEN one concern reports that Bristol's System of Coordinated Process Control is making it possible to shorten the time of an important process from 168 hours to a half hour, and in these 30 minutes is not only controlling pressure and vacuum but also operating 40 valves ranging in size from 2 to 24 inches . . . . . .

WHEN a second company says that this same system of self-coordinating control is securing an absolutely uniform product of 17% greater tensile strength . . . . . .

WHEN still other concerns tell us that Bristol's System of Coordinated Process Control is stepping up production 100% without additional labor or overtime, paying for itself in less than a year, and so on . . . . . .

WHO CAN PREDICT the equally surprising economies this new development may now, for the first time, make possible in still other plants, including yours?

BRISTOL'S COMPLETE LINE
is the basis of Coordinated Process Control

Bristol makes a complete line of control instruments to draw from in building a Bristol's System of Coordinated Process Control for a specific requirement or for solving a control problem requiring an individual instrument. Pressure, Vacuum, and Liquid Level Gauges, Flow Meters, Thermometers, Pyrometers, Humidity Instruments, Electrical Instruments, Process Cycle Instruments, and Tachometers for measuring, recording, and controlling are offered in a wide variety of forms to meet the needs of every industry.

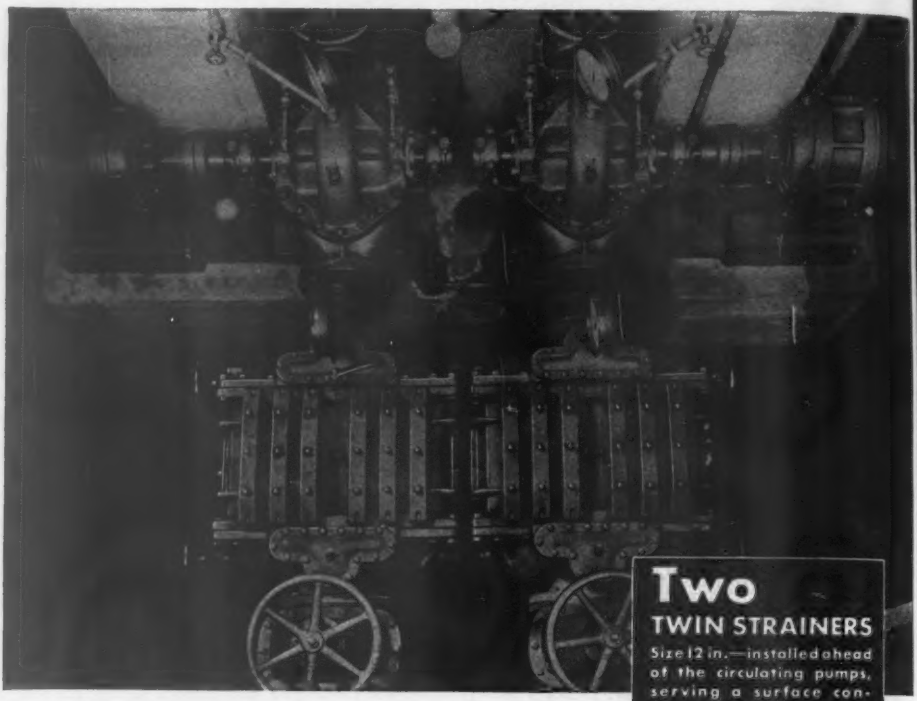
Bristol's System of Coordinated Process Control is extremely flexible. A new trend in industry, it can be *applied to any process*—including processes for which the exact schedule of operation for best results is known, processes that must rely upon close control in order to produce uniform quality, as well as processes that are likely to give trouble because of the difficulty in following, manually, the schedule of operation.

What this may mean to you in connection with your own production can only be developed through further discussion. Our engineers will welcome such an opportunity. Send for the booklet 460X "Bristol's System of Coordinated Process Control."

THE BRISTOL COMPANY

23 Bridge St., Waterbury, Conn. Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, Seattle, San Francisco. Canada: The Bristol Company of Canada, Limited, Toronto, Ontario. England: Bristol's Instrument Co., Limited, London, N.W. 10

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



TWIN STRAINERS save trouble

They insure clear water — complete protection of pumps, condensers, and other water-handling equipment against solid matter which would cause damage. Their twin compartments mean uninterrupted service — one side is always working, while the other may be opened for cleaning the basket which catches debris. Cleaning is quick and easy.

Twin Strainers are used in utility plants on circulating water lines to medium-sized condensers, in service water lines, lubricating and fuel oil lines. Sizes 2″ to 42″, large sizes motor-operated. Also built in single types.

Ask for Bulletin A-6.

A-230

ELLIOTT COMPANY
PITTSBURGH, PA.

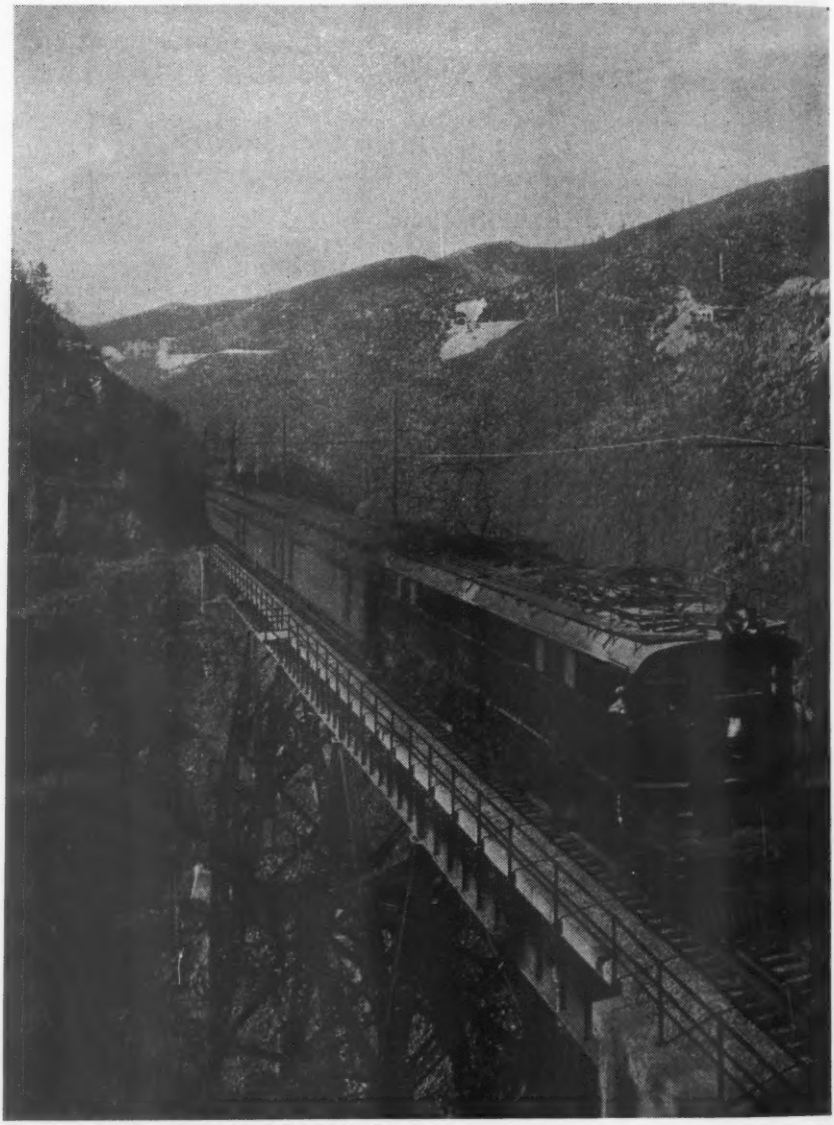
Accessories Department: JEANNETTE, PA.
District Offices in Principal Cities

This page is reserved under the* MSA PLAN *(Manufacturers Service Agreement)

Utilities Almanack

AUGUST

5	T^h	¶ *International Association of Electrical Inspectors, Northwestern and Southwestern Sections, will hold joint meeting, Salt Lake City, Utah, August 23–26, 1937.*
6	F	¶ *Union of Nova Scotia Municipalities will hold convention, Sydney, N. S., August 24–28, 1937.*
7	S^a	¶ *American Water Works Association, North Carolina Section, will convene for annual session, Wilmington, N. C., August 26–28, 1937.*
8	S	¶ *American Institute of Electrical Engineers will hold meeting, Spokane, Wash., August 30–September 3, 1937.*
9	M	¶ *National Association of Power Engineers will convene, St. Louis, Mo., August 30–September 3, 1937.*
10	T^u	¶ *Governmental Research Association will hold meeting and conference, Ithaca, N. Y., August 30–September 2, 1937.*
11	W	¶ *American Transit Association and affiliated associations will convene, White Sulphur Springs, W. Va., September 19–24, 1937.*
12	T^h	¶ *The Illinois Telephone Association will hold meeting, Peoria, Ill., September 22, 23, 1937.*
13	F	¶ *American Gas Association will hold annual session, Cleveland, Ohio, September 27–October 1, 1937.*
14	S^a	¶ *Chicago Exposition of Power and Mechanical Engineering will be held, Chicago, Ill., October 4–9, 1937.*
15	S	¶ *U. S. Independent Telephone Association will hold session, Chicago, Ill., October 12–15, 1937.*
16	M	¶ *League of Iowa Municipalities starts meeting, Des Moines, Iowa, August 18–20, 1937.*
17	T^u	¶ *Pacific Coast Gas Association opens annual convention, Seattle, Wash., August 17–19, 1937.*
18	W	¶ *American Water Works Association, Central States Section, begins annual session, Dearborn, Mich., August 18–20, 1937.*



Chicago, Milwaukee, St. Paul and Pacific R. R.

Upper Switchbacks near Falcon

Public Utilities
FORTNIGHTLY

VOL. XX; No. 3 AUGUST 5, 1937

The Present As Compared with Original Cost of Construction

What is this thing we call "Reproduction Cost" asks the author?

By CARL I. WHEAT
TELEPHONE RATE COUNSEL, F. C. C. TELEPHONE INVESTIGATION

IN the numerous public horse-trading contests which in recent years have been dignified by the title of "Rate Cases," much has been heard of a subject euphoniously termed "reproduction cost." Most of the elements presented for consideration in these highly publicized battles of wits have been prosaic enough, and some of the factors have been dull indeed, but "reproduction cost" has at all times belonged in the realm of the poets—the lyric poets, at that.

It is no function of this article to discuss the arguments for or against the consideration of "reproduction cost," or the weight to be accorded to it, as contrasted with "actual cost," or "historical cost," or "prudent investment," or any of the other elements that have been discussed and considered in making so-called "valuations" in public utility rate cases. Nor is it the present intent of the writer to belittle some reasonable consideration of "the present as compared with the original cost of construction," to quote the words of the Supreme Court in the legendary case of Smyth *v.* Ames.[1] The sole purpose at this time is to examine the nature of this thing called "reproduction cost," and to explore briefly the structure of poetic imagery that engineers, accountants, and lawyers have been erecting about

[1] (1898) 169 U. S. 466, 42 L. ed. 819.

this seemingly very simple phrase.

It is obvious that the real interest of the consumer of public utility service is fundamentally identical with that of the utility itself, to wit, service of high quality at fair and reasonable rates. This can be obtained only if the utility receives sufficient funds to maintain the property, to protect the stockholders' reasonable investment, and to develop the necessary "credit" to attract requisite new capital at a reasonable "cost of money."

The end envisaged in a public utility rate case is, therefore, to ascertain the kind and level of rates which, when applied to the services in question, will yield to the utility sufficient funds to repay the cost to it of economical and efficient operation, with wise provision for the future exhaustion and retirement of its plant, and a sufficient "overage" to enable it to attract necessary capital for expansion and to maintain service upon a proper plane.

IN the resolution of this problem the particular operations must be studied, and it has been the experience of rate regulatory bodies that basic potential operating costs are ordinarily ascertainable within reasonable limits; that taxes of the near future may be forecast with a high degree of accuracy; that depreciation accrual requirements sufficient to provide for the retirement of property worn out in the public service (while often the subject of acrimonious discussion) are susceptible of reasonably accurate determination, and that potential revenue under various rate hypotheses may be forecast with remarkable precision. It is the "overage" or profit factor (usually termed "return") which offers the best chance for argument. Indeed, the aspiring advocate often finds in this factor alone the opportunity to "produce" in a material way for his employer. Here he discovers his opening for speculation, for imagination, for poetry. "A fair return upon the fair value of the property devoted to the public service" may ostensibly be his text, but "reproduction cost" is his sword.

Although to the layman the word "value," as applied to most material objects, usually signifies some *quantum* in exchange, the impracticability of ascertaining any such market-place figure for the complicated aggregations of property which make up most public utility systems is apparent. And since the level of rates is the end being sought, the usual measure of the "value" of a business, *i. e.*, what it can earn, is unavailable. Therefore rate regulatory bodies have been told by the courts to "consider" a number of factors in arriving at the "rate base" upon which the "return" is to be allowed. Whether such consideration can properly be termed "valuation" or its results "value" seems highly problematical, but for the moment we are not concerned with that question of nomenclature. What we seek is the nature of only one of the factors thus listed by the courts—to wit, the "present cost" of the properties. This is the item so often referred to as "reproduction cost."

THAT the Supreme Court has recognized a connection between what it calls "fair value" and the broader movements of costs over the years is not now open to question. Thus, in the case of McCardle *v.* In-

dianapolis Water Co., decided in 1926, the court remarked:

> It is well established that values of utility properties fluctuate, and that owners must bear the decline and are entitled to the increase. The decision of this court in Smyth *v.* Ames (1898) 169 U. S. 466, 547, 42 L. ed. 819, 849, 18 S. Ct. 418, declares that to ascertain value "the present as compared with the original cost of construction" are, among other things, matters for consideration. But this does not mean that the original cost or the present cost or some figure arbitrarily chosen between these two is to be taken as the measure. The weight to be given to such cost figures and other items or classes of evidence is to be determined in the light of the facts of the case in hand.[2]

The practical problem, therefore, is to ascertain and to attempt to apply the philosophy which underlies the court's concept of "fair value" in utility rate cases, with particular reference to this concept of "the present as compared with the original cost of construction." In practice two distinct reasons have apparently been advanced for the introduction of "present cost" or "reproduction cost" data in such cases.

THE first such reason, or point of view, is based upon the proposition that the "value" of public utility properties is indeed influenced by broad changes in costs and prices over the years, in which event the question becomes: *To what extent do book costs fail fairly to reflect present cost levels?* If this be the reason that book costs require supplementing by some other figure in arriving at a fair "rate base," then any broad changes in prices and costs between the date of actual construction and the present day should unquestionably be inquired into. This is the realistic approach to the problem.

In this connection, it should be recalled that the Supreme Court has specifically declared that no one would question that "the reasonable cost of an efficient public utility system 'is good evidence of its value at the time of construction.'" (Los Angeles Gas & E. Corp. *v.* California R. Commission.)[3] The court has also declared that "such actual cost will continue fairly well to measure the amount to be attributed to the physical elements of the property so long as there is no change in the level of applicable prices."[4] And in instances where broad changes in price levels have occurred it has been observed that price and cost trends (provided, of course, that they are pertinent to the types and classes of property under consideration) are relevant factors to be considered.[5]

OBVIOUSLY, where the aim is to give fair consideration to these broad

[2] 272 U. S. 400, 410, P. U. R. 1927A, 15, 23.

[3] 289 U. S. 287, P.U.R. 1933C, 229. See also Clark's Ferry Bridge Co. *v.* Pennsylvania Pub. Service Commission (1934) 291 U. S. 227, 2 P.U.R.(N.S.) 225.

[4] McCardle *v.* Indianapolis Water Co. *supra.*

[5] West *v.* Chesapeake & P. Teleph. Co. (1935) 295 U. S. 662, 8 P. U. R. (N. S.) 433.

¶ "IT *is obvious that the real interest of the consumer of public utility service is fundamentally identical with that of the utility itself, to wit, service of high quality at fair and reasonable rates. This can be obtained only if the utility receives sufficient funds to maintain the property, to protect the stockholders' investment, and to attract requisite new capital.*"

changes in the levels of applicable prices, and thus to ascertain to what extent the book costs of the property in question fail properly to reflect such changes, no far-fetched assumptions need or should be made respecting the nonexistence of the existing plant, the coming to town of a promoter with his plans and his imaginary "organization expenses," the physical "reproduction" of the existing plant under conditions which may have changed materially since its actual construction, the cutting and replacement over mains or conduits of paving which was not historically cut and replaced, or the necessity of meeting, at great cost, many other "difficulty factors" resultant from the growth of the community, or otherwise. Such assumptions of what might potentially have to be faced in a hypothetical program of physical plant "reproduction" assuredly bear no logical significance in the proper development of this element of "value," when it is realistically considered as an attempt to ascertain the effects of broad changes in costs or prices over the years, and therefore as an effort to determine to what extent the book costs of the property in question fail reasonably to reflect these changes.

THE second point of view respecting the need for an inquiry into "present cost" in rate cases involves quite a different approach to the problem. It is the approach adopted by many public utilities in recent years. The proponents of this second point of view reason somewhat as follows: Since the cost to obtain a like item or a like structure is undoubtedly an element in determining what a prospective purchaser would pay for an automobile or a house, or other item of property, and since it is generally impossible to purchase another property similar to a given public utility system, it is of import for a purchaser of such a property to ascertain the potential cost of erecting the building or plant in question under conditions existing at the time of the inquiry, or of obtaining another automobile or dynamo just as good as the one under consideration. To this simple proposition no fair-minded person could reasonably refuse to give his assent. It is when the attempt is made to assimilate such philosophy to the problems of rate making that difficulty arises.

Indeed, when it comes to the actual process of arriving at such a figure for a public utility system, as this "reproduction cost" process has been built up in recent rate cases, those who prefer to keep their feet on sound ground must part company with the so-called "experts." In contrast to the realistic approach to the problem, we discover that under this second approach there has been erected a great structure of imaginary and imaginative potential and hypothetical "costs," totally unrelated to reality. And the argument is made that this is what the Supreme Court really meant by its use of the term "present cost." Here, indeed, we discover the *ignis fatuus* of "valuation."

IT is on this second premise that the "experts" assert the necessity for including the various unreal elements above mentioned, *i. e.*, the nonexistence of the existing plant, the coming to town of a promoter, his speeches to the local clubs offering to build a plant, the excitement and delight of a receptive

Imaginary Plant Construction

" . . . whenever the question has been definitely and concretely presented to it for consideration, the Supreme Court has apparently been careful to avoid the building up of any theory of imaginary physical reconstruction of the existing plant in connection with its term 'present cost.' It has recognized a certain pertinency in the development and consideration of broad trends of costs and prices in respect to the actual properties in question, but the purely imaginary structure . . . as to the nature of 'reproduction cost' has happily been placed exactly where it belongs—beyond the realm of argument."

populace, the preparation of blueprints, the obtaining of new franchises under social, legal, and political conditions not effective when the plant was originally built, the cutting and replacing of pavement not historically cut or replaced, the cost of meeting increased traffic and city growth, and a myriad of like "difficulty factors" that were not present when the plant under consideration was actually constructed, together with divers other hypothetical costs which an actual physical "reproduction" of the property might conceivably entail.

That no public utility property ever is or ever has been actually thus physically "reproduced" does not deter these advocates. They merely assert that they have been told to find the cost of *reproducing* the plant under existing conditions, and "here it is." Admittedly, if this second theory of the reason for developing the item of "present cost" in rate cases were ever to be consciously and definitely adopted by the courts, it would be essential thus to estimate a "construction period," to guess at the cost of cutting and replacing new paving, and to imagine the expense that might be incurred in meeting the many traffic and other community factors that have developed since the actual construction, with resultant increased potential costs over and above those which have been met in the historical development of the property under consideration. The adoption by many utilities of this second alleged reason for the development of "reproduction cost" has apparently resulted almost wholly from the hope that by some such reasoning they could thus raise this item farther

and farther toward the stratosphere.[6]

FORTUNATELY, however, the Supreme Court does not appear to have been willing to stretch the logic of its concept of "present cost" by adopting any such theory. A careful examination of its decisions discloses that, although certain of the valuations approved by the court may have included some items valued at their speculative reconstruction cost, the court seems never to have accepted explicitly the view that the term "present cost," as it has used that term, signifies the concept of imaginary physical "reproduction cost," as it has thus been built up by the lawyers, accountants, and engineers.

The key to this situation lies apparently in the manner of presentation of these problems to the court. In view of the quality of a game so frequently imparted in litigation to controversies that are already too factually complicated for short explanation this seems unfortunate, but, interestingly enough, *whenever the direct question of the validity of an item of valuation based on the second theory has actually been concretely presented to the court,* that tribunal has consistently kept its feet on the ground. And in such instances it has uniformly adopted the more realistic view of the nature of this item. Apparently, therefore, although such presentation of the subject has so far been limited to particular items of the valuation, the principle is clear.

Thus, the Supreme Court recently declared with emphasis that pertinent price and cost trends are indeed relevant factors, but that no "precipitate rise in spot prices of materials or labor" should be allowed.[7] Moreover, the putative cost of cutting and replacing paving over mains, when the same was not historically cut and replaced in the actual construction of the plant, has been vigorously disallowed, though there can be no doubt that in an actual physical "reproduction" of the property at the present time such cutting and replacing would have to be done, unquestionably at large cost.[8] On similar reasoning potential "organization expense" that would undoubtedly be necessary under actual "reproduction" at the present time, has been rejected where not in fact historically incurred.[9]

IN other words, whenever the question has been definitely and concretely presented to it for consideration, the Supreme Court has apparently been careful to avoid the building up

[6] Possibly the underlying humor of this situation has at times been obscured by an all-too-apparent seriousness of purpose on the part of the "experts" who expound this theory of physical "reproduction cost." It is said that during a recess in an early rate case being heard before the California Railroad Commission, one of the commissioners mopped his brow and remarked feelingly to a group of spectators:

"They bring on their lawyers, and they argue and they argue, and I think I understand what they say if I don't know what they mean.

"And then they bring on their engineers, and they figure and they figure, and I think I know what they mean if I don't understand what they say.

"But finally they bring on their expert accountants (pause!), and they argue and they figure, and they figure and they argue, and I neither understand what they say nor know what they mean."

[7] West *v.* Chesapeake & P. Teleph. Co. *supra.*

[8] Des Moines Gas Co. *v.* Des Moines, 238 U. S. 153, 172, P. U. R. 1915D, 577, 590; Dayton Power & Light Co. *v.* Ohio Pub. Utilities Commission (1934) 292 U. S. 290, 311, 3 P. U. R. (N.S.) 279, 294.

[9] Dayton Power & Light Co. *v.* Ohio Pub. Utilities Commission, *supra.*

of any theory of *imaginary physical reconstruction* of the existing plant in connection with its term "present cost." It has recognized a certain pertinency in the development and consideration of broad trends of costs and prices in respect to the actual properties in question, but the purely imaginary structure erected by the proponents of the second school of thought as to the nature of "reproduction cost" has happily been placed exactly where it belongs—beyond the realm of argument.

The proposition seems almost too clear for controversy. Since, as was declared in the Los Angeles Gas & Electric Co. Case, "the reasonable cost of an efficient public utility system 'is good evidence of its value at the time of construction,'" and since, as the Supreme Court said in the McCardle Case, such actual cost may in general be used to measure the amounts attributal to the physical elements of the property "so long as there is no change in the level of applicable prices," certainly when a property is comparatively new, and where there have been no broad changes in price levels since its construction, no one would argue that, in using its cost in that manner, there should be added the paving costs and other imaginary "difficulty factors" above mentioned. Why, then, should there be a difference in method or philosophy in instances where price changes have intervened? To the present writer it seems clear that neither on reason nor on the decisions can any such difference be logically defended. Mr. Justice Holmes once remarked of a litigant that he was apparently using the "language of hope," and the remark is curiously pertinent to the case in hand.

MOREOVER, under the realistic approach no serious "substitutional plant" problem arises. This view accepts the property as it has grown up through the years, unless items of imprudent investment clearly appear. Under the hypothetical physical reproduction approach, however, there must be a determination of efficiency of plan and of construction under present conditions—and this notwithstanding the vehement protests of the "reproduction" advocates. For if "reproduction" is to be the standard, it seems essential to consider the problem as one of reproduction of plant service capacity under existing conditions and "the state of the art," rather than mere duplication of individual plant items, many of which, in addition to being merely old, may be obviously obsolescent, if not fully obsolete. In other words, what's sauce for the goose is sauce for the gander, and if altered

¶ "IT *is . . . flights of hypothesis and imagination that have incensed the ratepayers, have befuddled many commissions, have dragged out utility rate cases to incredible lengths, and have aroused public suspicion not only in respect to utility practices, but also in respect to the efficacy of the entire present machinery of public utility regulation.*"

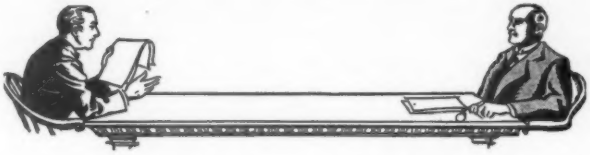
community conditions are to be given consideration in arriving at "difficulty factors" to increase reproduction cost estimates, then obviously advances in the art of production and distribution of the service should be considered, even though they would lower the cost of "reproduction."[10]

The clear distinction between these two methods or schools of thought (the one realistic, the other imaginary) is therefore important to be borne in mind, if the judicial pronouncements on this subject are to be properly understood. In final analysis, the first concept of the use of "present cost" data meets the logic of the situation and follows the apparent reasoning of the courts in every case where the issue has been concretely raised, whereas the second concept not only fails to conform to the judicial reasoning, but contains the seeds of its own destruction, because of the glaring inconsistencies that inevitably follow every attempt to apply it with any completeness in practice. *The adoption of the first method is in no sense a mere attempt to discover a "short cut" to the problem's answer. The distinction is one of principle.*

IT has been asserted by certain writers that in the West Case the Supreme Court interdicted and prohibited the use of "price trends" in arriving at "the present as compared with the original cost of construction," and that regulatory commissions are therefore forced to use the "imaginary reproduction method." The present writer does not so read that decision. Nor was that precise question before the court in that case. What the court apparently there did was to declare "inapt and improper" the particular machinery used by the Maryland commission in arriving at a derived "value" through "the application of general commodity indices to a conglomerate of assets constituting a utility plant." Indeed, it seems probable that had the broad trends of costs and prices on the specific kinds of property under consideration been used by the commission, *as they were in fact used by the company in that very proceeding,* the court's decision would have been a very different one, for the court specifically declared that it did not mean to say that price trends are to be disregarded, but "quite the contrary," and it added that "evidence of such trends is to be considered with all other relevant factors" (citing cases).

In the West Case the combination of: (1) the use of general commodity indices, rather than specific price indices applicable to the particular types of property in question; (2) the alleged "weighting" of the various indices that were used; (3) the asserted adoption of "spot prices" which had recently resulted from a "precipitate decline" in price levels; and (4) the use of the results thus determined as the sole measure of "value," seems to have been the vice of the commission's decision, in the minds of the majority justices. This fact, when considered in connection with the court's emphatic disapproval in numerous other decisions of many individual elements of imaginary "reproduction new" appraisals, such as "paving over mains,"

[10] For an exposition of this important proposition, see dissenting opinion of Mr. Justice Brandeis in St. Louis & O'Fallon R. Co. *v.* United States, 279 U. S. 461, P. U. R. 1929C, 161, 199.



Danger of Seeking an Inflated Rate Base

"In their own interest, it would seem to be but good business and sound judgment for those who control the policies of the public utilities of the country to eschew the flights of imagination which have colored (or discolored) so many rate cases, and to avoid an approach to this important problem the further pursuit of which cannot fail ultimately to result in drastic public condemnation. The amount potentially to be gained in increased rates is not worth the risk involved."

appears definitely to indicate that a *reasonable use of specific price trends* in arriving at the amount by which the company's book costs do not reflect present costs (and therefore in arriving at the single element of so-called "value" now under discussion) would be approved as against the imaginary elements of costs built up through a hypothetical physical "reconstruction" or "reproduction" of the property, under conditions not present when it was actually constructed.

THERE is nothing to the contrary in the Supreme Court's decision in the "Ohio Bell" Case.[11] In that case the commission had admittedly used certain price and cost trends in arriving at its conclusion as to "value," but for some reason best known to itself it had refused to afford the company access to the figures or trends which it thus used. Protests were vain, and the court very properly declared such arbitrary action to be a patent denial of "the fair hearing essential to due process." But nowhere did the court suggest a condemnation of the use of proper and apposite price trend data after a fair hearing, in which there had been full opportunity for cross-examination and rebuttal. The fundamental right to such a hearing, said the court, cannot be denied because of a mere desire to avoid "harassing delay."

Of course a full and fair hearing must be had, and the fact that the first point of view as to the true nature of "present cost" data in rate cases is not a mere attempt to find "a short-cut to the answer" must therefore be reiterated. The distinction between this point of view and that of the "physical reproduction cost" estimators is emphatically one of logic and principle and is equally emphatically not one of mere expediency. Obviously, the realistic approach offers many prob-

[11] Ohio Bell Teleph. Co. *v.* Ohio Pub. Utilities Commission (1937) 18 P.U.R.(N.S.) 305, 314, 57 S. Ct. 724.

lems in practice, but its use eliminates once and for all the imaginative and hypothetical elements of the other approach, and in the hands of informed men its use should present no serious difficulties.[12]

A CLEAR exposition of these two divergent theories of the use and utility of "present cost" data in rate cases is to be found in the testimony of A. V. Guillou, engineering witness for the complainant city in the recent Los Angeles telephone rate proceeding,[13] which resulted in an order reducing the Southern California Telephone Company's rates in its Los Angeles exchange by some $1,250,000. The case is of interest in the present connection because it illustrates the lengths to which able technical men will at times go in building up imaginary "reproduction cost" items for the purpose of developing claims of "value." It is in no sense an isolated instance, and is selected here solely for purposes of illustration.

In the Los Angeles Case the book cost of the company's properties totaled $169,000,000; the cost to "reproduce" the properties at the time of the inquiry was claimed to be $182,800,000; and the claim of "fair value," after taking into consideration admitted accrued depreciation, was $175,000,000. We are here concerned solely with the basis of the company's assertion of what it would cost to "reproduce" the properties.

That figure was based upon an inventory to which certain derived "unit costs" were applied. Cross-examination of the company's witnesses disclosed that this "appraisal" included $3,171,400 to represent *the cost of cutting and replacing paving over conduits in instances where no such costs were historically incurred,* though the Supreme Court had but recently declared that "the cost in imaginary conditions of cutting and restoring pavements was not an increment of value."[14] It further appeared that the total included $1,033,000 to represent *telephone station installations and associated drop wires which had actually been abandoned at the time of the appraisal.*[15]

MOREOVER, it was brought out that no less than $1,623,000 was included to represent *"left-in disconnects," i. e.,* telephones disconnected

[12] The recent Pacific Gas and Electric Company Case does not bear directly upon the proposition here discussed. In that case the United States Supreme Court sustained (by an equally divided court, without opinion) a decision of a Federal district court enjoining the enforcement of a California commission decision which required reductions in certain gas rates. The commission had refused to give weight to the reproduction cost evidence adduced by the company (apparently on the ground that it lacked probative value), and, in the absence of any other testimony of record respecting present cost, had relied solely upon original or historical cost in arriving at its rate base. The lower Federal court declared, in effect, that this failure to "consider" the item of present cost even under these circumstances, rendered the commission's decision invalid, without more. The court therefore enjoined the rate order without considering the merits of the case or the character of the evidence of record in respect to reproduction cost. (See *Re* Pacific Gas & E. Co. (1933) 1 P.U.R.(N.S.) 1; Pacific Gas & E. Co. *v.* California R. Commission (1934) 5 F. Supp. 878, 4 P.U.R.(N.S.) 260; and California R. Commission *v.* Pacific Gas & E. Co. (U. S. Sup. Ct.) minute order of June 1, 1937.)

[13] Los Angeles *v.* Southern California Teleph. Co. (1936) 14 P.U.R.(N.S.) 252, before the California Railroad Commission (see record in Case 3800 before that body).

[14] Dayton Power & Light Co. *v.* Ohio Pub. Utilities Commission, *supra.*

[15] See, re presently unused property, Los Angeles Gas & E. Corp. *v.* California R. Commission, *supra.*

but left by the company, for its own convenience, on the former subscribers' premises. (Picture the imaginary promoter rushing hither and yon over the new system feverishly "reproducing" this large amount of already disconnected and idle equipment!) In addition, the sum of $405,500 was included to represent imaginary *organization and franchise costs in excess of those actually incurred in the development of the system,* an item that had recently been specifically disapproved by the Supreme Court.[16]

The use of "spot prices" on equipment purchased from the Western Electric Company (though the reflection of "precipitate" price changes had been frowned upon in the West Case)[17] also enabled the utility to take advantage of a sudden recent and rather large price increase by that company, and to claim some $7,000,000 more than would have resulted from the adoption of a 5-year average pricing period (that being the "construction period" actually adopted by the company in its "reproduction cost" estimate). And this in the face of generally declining price levels in respect to almost all other commodities over that period. The fact is that such Western Electric price increases had practically no direct effect on the capital structure of the plant under consideration, since the construction program of this utility had been negligible in amount since this price increase, and in fact had been negligible in amount for some time prior thereto. Thus, by a mere scratch of the pen, the Western Electric Company (another subsidiary of the defendant utility's parent corporation) had created a basis for claims of increased "reproduction costs" totaling millions of dollars in this single case.

FURTHER, after an analysis of *actual unit costs* encountered by the company in the construction of considerably over half of its entire plant during the preceding few years, putative unit costs for the imaginary "reproduction" of the plant during the hypothetical 5-year construction period were so highly increased on account of so-called "difficulty factors" that for the same inventory the company's estimated costs for its visualized "reproduction program" exceeded the costs determined from its analysis of recent actual performance by no less than $13,700,000.

(In this connection it might well be recalled that in the Los Angeles Gas Case the Supreme Court specifically remarked that in a case wherein a change in price level had occurred, "actual experience in the construction and development of the property, especially experience in a recent period,

[16] Dayton Power & Light Co. *v.* Ohio Pub. Utilities Commission, *supra.*

[17] *Supra.*

¶ "THE *Supreme Court has remarked that while 'reproduction cost' should indeed be considered, 'we have emphasized the danger in resting conclusions upon estimates of a conjectural character,' the inclusion of 'cost of financing' and 'promoters' remuneration' being specifically disallowed."*

may be an important check on extravagant estimates.")

Finally, the sum of $20,610 was included to represent a glorious flight of fancy—*taxes during construction on interest during construction.*[18]

The Supreme Court has remarked that while "reproduction cost" should indeed be considered, "we have emphasized the danger in resting conclusions upon estimates of a conjectural character,"[19] the inclusion of "cost of financing" and "promoters' remuneration" being specifically disallowed. And the court declared in an important earlier decision that:

> The cost of reproduction method is of service in ascertaining the present value of the plant, *when it is reasonably applied and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which depend upon mere conjecture.* Minnesota Rate Cases (Simpson *v.* Shepard) (1913) 230 U. S. 352, 452, 57 L. ed., 1511. (Emphasis added.)

In the Los Angeles telephone case no less than $27,000,000 of the company's total asserted "reproduction cost" of $182,800,000 apparently represented "results which depend upon mere conjecture"—unreal and imaginative items which would have no place in a realistic consideration of "the present as compared with the original cost of construction" of the properties under the theory of the nature of "present cost" in rate cases which has been approved by the courts whenever a concrete issue has arisen as between the two methods. Let it be repeated that this Los Angeles Case is not an extreme one; it is only one example out of many that could be cited. And the writer does not wish to be understood as suggesting that telephone companies have been any more guilty of these flights of fancy than have other types of public utilities. All have pursued the same tactics—for the same reasons.

It is these flights of hypothesis and imagination that have incensed the ratepayers, have befuddled many commissions, have dragged out utility rate cases to incredible lengths, and have aroused public suspicion not only in respect to utility practices, but also in respect to the efficacy of the entire present machinery of public utility regulation.

If, in this curious game of "valua-

---

[18] Curiously enough, the urge for consistency in presenting "reproduction cost" estimates in the Los Angeles Case led the company's experts into a peculiar *cul-de-sac* when it came to automobiles. Notwithstanding the fact that the southern California used-automobile market is the largest in the United States, and that actual used-car prices are published, are fully standardized, and are readily ascertainable, the company's witnesses decided to "reproduce" its automobiles. To this end they went through the following highly illuminating process:

(1) They obtained from automobile piece-part catalogues the prices of some thirty separate parts (representing, said they, some 60 per cent of the total vehicle), (a) for the year each make and model of vehicle was purchased, and (b) for December 31, 1934, the date as of which the "valuation" was being made;

(2) They ascertained the ratio which the sum of these piece-part prices for the year of purchase bore to the sum for December 31, 1934;

(3) They applied this ratio to the total cost of vehicles of each particular type and age, as shown on the books, and

(4) They labeled the resulting figure "reproduction cost new" of automobiles.

In such fashion did they obtain the "cost new" of a 1929 Ford in 1934! If such a process bears any relation to "value"—under *any* definition of that term—it is difficult to perceive it. Yet this is but one example of the lengths to which many otherwise sane men have gone when attempting to build up "reproduction cost" figures in rate cases under the second theory of its nature.

[19] Los Angeles Gas & E. Corp. *v.* California R. Commission, *supra.*

tion," the present cost of properties is to be considered at all, must it not be properly and logically and realistically determined? As already stated, this does not involve a mere attempt to find a "short cut to value." It involves a fundamental distinction of principle in the philosophy of approach to the problem.

IN their own interest, it would seem to be but good business and sound judgment for those who control the policies of the public utilities of the country to eschew the flights of imagination which have colored (or discolored) so many rate cases, and to avoid an approach to this important problem the further pursuit of which cannot but fail ultimately to result in drastic public condemnation. The amount potentially to be gained in increased rates is not worth the risk involved. Already, one concrete result of the adoption of fanciful theories of "valuation" by public utilities in rate cases is the new-found "yardstick" method of public appraisal of rate levels in the electric industry. In adopting and strenuously urging the second theory of the import and nature of "present cost," a veritable Frankenstein has been created.

If we are to continue to consider "the present as compared with the original cost of construction" in arriving at a base on which to measure the fairness of public utility rates, the true function of evidence respecting "reproduction cost" must be understood, and that evidence must be made responsive to reason and actuality. Let us, if need be, investigate the extent to which book costs do not reflect existing costs, but let us remember that alleged "values" built up of imaginary "difficulty factors" under conditions involving purely hypothetical reproduction; of fortuitous "left-in disconnects" now reconstructed solely for valuation purposes; of "paving over mains" not actually cut historically; and of automobiles "reconstructed new" out of piece-part catalogues simply cannot withstand honest examination. Such alleged "values" are built upon sand, and the wind will blow, and the rain descend, and down they will fall.

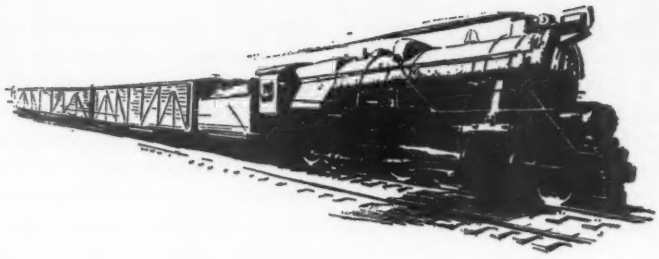
And great will be the fall thereof!

Electric Fanning

"YOU can appreciate, of course, that visiting days at Joliet penitentiary created difficult situations. Relatives visited inmates bringing baskets of apples and pears, in the cores of which were embedded small steel files. (Or at least if they weren't, it would have been a whale of an idea.) And as a result of sharp instruments being smuggled in to prisoners, the latter were enabled to file away their time; and occasionally the warden on his rounds would find inexplicable vacancies among the apartments.

"Now all of that is ended. Today when you visit a relative—beg pardon, a client—at Joliet penetentiary, you are 'fanned' electrically. Nobody pats you on the —uh—back; you merely walk through a doorway across which beams the electric eye. As big as you are, if you have no metal on your person, you will not interrupt the action of the photo-electric cell. But if you are carrying a six-shooter, the electric eye will find it, and a gong rings."

—EDGAR BERNHARD,
In *Chicago Bar Record.*



Lo, Ye Poor Freight Car—

At once the most indispensably valuable and, in the author's opinion, the most prodigally wasteful tool of modern civilization.

By TYLER GASKILL PRICE
MEMBER, AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

To Mr. John Quixote Citizen, who invested 26 billions in railroads and then neatly coppered his bet by putting several times as much into automobiles, the dawn of a new day for mass transportation seems about to crack. John figures he will hear the report, via his bank account, almost any minute now. For at long last, the wonderful one-hoss shay of heavy traction is being modernized to recapture business from unscrupulous trucks and busses. Stream-lining, air conditioning, electric, and Diesel-electric power, higher speeds for lower fares, a passenger ticket for your automobile, and door-to-door movement of your freight,

> That is the way they put it through,
> With an I vow vum an I tell you—
> "There," says Officialdom, "now she'll do!"

And as if in response to these phrenetic efforts, the traffic has begun to increase. Surely, Grandpa's bonds of the old Downers Grove and Bazoo River Air Line will start paying interest pretty soon. Good old John—that's what he thinks!

Essential truths escape him: two streamlined trains do not constitute a passenger department, and one passenger department does not make a railroad. Fine as the innovations may be, they can never lure to the rails those who prefer to move by air or highway. The increase in passenger business merely means that more people want to travel—witness, recent auto sales—and the railroads are getting their share. But they have not coaxed a dime's worth of traffic from other modes of transport. And even if they had, it would not make them rich, for the passenger department never brought in more than 20 per cent of all revenues.

STILL, the Association of American Railroads confidently assures Mr. Citizen, "We're doin' O. K., buddy!" Maybe they really think they are. But the fact remains that the steam lines

are not doing O. K., and never have done, except in 1916, when anybody could make money with his eyes shut. At least, so states *A Yearbook of Railroad Information,* prepared by Western Railways Committee on Public Relations, and edited by Committee on Public Relations of the Eastern Railroads. It is full of statistics, those for 1911 being used as bases for percentage increases or decreases of successive years.

A Yearbook says:

Between 1911 and 1929 (a good year for the carriers) the revenue freight traffic increased 79 per cent, while the capital investment increased only 73 per cent. Thus, the *work / capital* efficiency (revenue ton-miles, divided by capital dollars) improved 3 per cent in nineteen years. Hence, each dollar invested now provides more transportation than formerly, and, therefore, the railroads are doing O. K. (Q.E.D.). Thus, we demonstrated Mark Twain's famous theorem that there are three kinds of liars, to wit: liars, damned liars, and statisticians.

For while the *work / capital* ratio is a true index of mechanical-financial status of manufacturing plants, wherefrom the "output" (building bricks, electric lamps, or whatever) is the product of work, it is not true for transport mechanisms, whereof the output is not the product of work, but is the work its very self, *i.e.* weight moved through distance, *i.e.* (again) ton-miles. It is untrue because it takes no account of the rate at which the machinery must be driven to accomplish its function.

THE point needs illustrating: A man buys an ax for $5 and chops down a tree. Then, he buys another ax for $10 and chops down two trees. Which is the better tool? The *work / capital* ratio gives no information, for it is the same for both, one tree felled, divided by $5. But the woodsman knows that the blade with the higher operating speed, that is, the one which requires the greater number of strokes per minute to accomplish its work in a given time, is the poorer tool, because it must be sharpened oftener and exhausts its human prime-mover more rapidly.

All this can be said quite simply, by dividing the *work / capital* ratio by the speed of working, and so evolving the *work / capital* × *speed* ratio, which is the correct mechanical-financial index for transport mechanisms.

For the railroads, the operating speed is the average velocity of cars, 20 miles a day in 1911, and 32.3 miles a day in 1929. Mark Twain's statisticians contend that this 63 per cent increase in speed, atop a 3 per cent improvement in the spurious *work / capital* ratio indicates good railroading. But any glum-visaged engineer with a slide-rule can show that, instead of improving, the *work / capital* × *speed* efficiency actually declined by 37 per cent, because cars and engines must now be driven much harder to accomplish the same ton-mile haulage per dollar invested. In plain English, the railroads are not nearly so good a machine for the money as they were a quarter of a century ago! And that, certainly, is not doin' O.K.—or anything like it—, buddy.

THE two reasons for this dry rot in an age of mechanical luxuriance hinge on the single fact that a relatively

large part of heavy traction investment must go for static structures, real estate, rails, stations, signals, etc., which perform no work, while a correspondingly small proportion is required for locomotives and cars, which are the only work-performing elements. Wherefore, no improvement of operation, like raising the speed or running engines more miles per day, can ever render a commensurate reduction of the total investment.

The first cause of the decline of the *work / capital × speed* efficiency is the anomalous increase of capital. Since 1911, there has been no extension of the steam lines, for by that year, all real estate had been secured, the 261,000 miles of main track had been laid, and all communities were receiving service. Thenceforth, the *work / capital × speed* efficiency should have improved, since the traffic might multiply itself several times with but small capital expenditures for replacements of rolling stock and static equipment which had already paid for themselves. Certainly, there could be no need for large expenditures for extensions of a virtually completed system. *And yet for some obscure reason, since 1911, money has been poured into the heavy traction lines in almost exact proportion to the increase in traffic, 73 per cent more money, for 79 per cent more business, as though the additional traffic could be gained only by purchasing more rights of way and rolling stock and extending the lines to serve even more distant communities.* The only explanation vouchsafed is the glib generality about advancing equipment costs—which is thin unto transparency.

THE second cause of the decline of the mechanical-financial index is the increase of speed, which by the very circumstance of affording a curtailment of capital expenditures for certain items, necessitates far greater spending for others.

For illustration:

Assume the railroads need 100,000 new freight cars, at $1,000 each, but it is calculated that by raising the speed of existing cars 5 per cent their ton-mile carrying capacity can be so increased that the new cars will not be needed. Very well, up go the speeds, and $100,000,000 is scratched from the investment budget. And then, the fun begins.

More powerful locomotives (amounting to 15 per cent of the 4,500,000 tons of freight engines, at $200 a ton) are needed to maintain the faster schedules. And stronger rails (amounting to 10 per cent of the 44,000,000 tons of main line steel, at $40 a ton) are needed to support the heavier engines. And presently, the carriers are in the unenviable condition of having avoided the expenditure of $100,000,000 for freight cars by the

¶ "HAVING *thus convinced himself that, in spite of its inherent inefficiency, the steam locomotive can still tow more cars for less money than other machines, the student of transport economics will rest his jaundiced gaze upon the freight equipment.*"

novel method of putting $315,000,000 into roadbed and motive power!

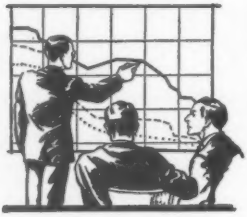
Of course, this is a typical illustration, not a specific instance. But it is stark history for all that. Even Johnny Q. Citizen, who is no expert in such matters can testify to that. Again and again at successive world's fairs he has stood in awe before the "largest and most powerful steam locomotive ever constructed." Its prideful exhibitors did not tell him that the magnificent machine could never tow a long train uphill as fast as it would drag the *work / capital* × *speed* efficiency down. But if he had had his wits with him, he might have guessed that anyone can buy (with some other body's money—pardieu, was not the money his, John Citizen's very own?) a bigger, more costly machine to do more work, while only enlightened organizations can so arrange their work that it may be done with smaller, less expensive tools. The very reason why the Downers Grove and Bazoo River wasn't paying off Grandpa's bonds was bulking large before his very eyes and Johnny could not even see it.

A Year Book of Railroad Information states the facts succinctly. During the hallellujah year, 1926, the steam lines actually earned 3 per cent more money per dollar invested than they had in 1911. In 1929, the earnings were exactly equal to those of the base year. And in every other twelve-month, 1920-29, the earnings were below par. The loudly ballyhooed operating "economies" were inadequate to offset the rapid rise of fixed investment charges due to the continued inpouring of new capital, and the expectable increase of operating expenses, due to the normal rise in costs of fuel, labor, maintenance, and supplies. The plain truth is that the carriers had long ago lost their money-making ability and neither the vast traffic volumes nor the exorbitant tariffs of the Prosperous Decade could restore it.

Such being the facts, there is little hope of increasing earnings by any of the means thus far employed. Buying new equipment will increase investment expenses by a greater amount than the fresh apparatus can reduce operating expenses or raise operating income. Boosting the rates will, as always, tend to drive business from the rails to the highways and waterways. Securing new traffic volumes is futile, since shippers will ever choose that mode of transport which affords the best combination of economy and convenience. The railways will always get their rightful share of the available haulage, no less—and no more. If the heavy traction lines are to make more money, they must do so from the present traffic volume, at the present tariffs, and they must do it with the existing equipment.

Fortunately, such legerdemain of pulling golden rabbits from a hat wherein no rabbits live, needs no jugglery with stocks and bonds, but only the improvement of the mechanical and commercial efficiencies of the physical properties. It is an old trick, resorted to by backward corporations, time out of mind. In fact, the major difference between living industries, like communication, electric power production, etc., and moribund ones, like agriculture, railroading, etc., is that the living ones improved their physical equipment before the need arose and the

The Problem of Increasing Railroad Earnings



". . . there is little hope of increasing earnings by any of the means thus far employed . . . The railways will always get their rightful share of the available haulage, no less—and no more. If the heavy traction lines are to make more money, they must do so from the present traffic volume, at the present tariffs, and they must do it with the existing equipment."

dying ones did not. For the railroads, the trick will fail in only those cases where cars and engines have already been brought to their highest attainable efficiencies. And, of course, there are no such cases.

INEVITABLY, the steam locomotive receives more than a fair share of ribbing by uninformed critics. Its annual fuel bill is $350,000,000, and its thermal efficiency is only 5 per cent, that is, of every 100 shovelfuls thrown into the firebox, 5 come out as useful work in towing the train, and 95 go up the stack as waste heat. Terrible! shout the critics; either improve the iron horse or get a better machine.

This advice would be good—if anyone could follow it. Low thermal efficiency is inherent in the reciprocating steam engine, so that improvements in it can never render more than microscopic savings of the total operating cost of the entire railroad. And thus far, no other machine has been proved to be better. For patently, the right locomotive is that which affords the best combination of acceptable mechanical performance with the lowest total of operating expenses and fixed investment charges.

Against the superlative performance and low operating costs of the electric locomotive must be set its high first cost (about three times that of an equally powerful steam engine) and the tremendous investment in generating stations, transmission lines, substations, feeders, trolleys, rail-bonds, and signal reconstruction—all chargeable to the locomotive, since all are for the sole purpose of putting power on the driving wheels.

AGAINST the low operating expenses of the Diesel, electric locomotive must be set its high first cost (again two or three times that of an equally powerful steam engine) and its questionable performance. Whether these engines can ever be built rugged enough to withstand more than the first few years of even such light services as that of hauling feather-weight, stream-lined, roller-bearinged trains is still a matter of speculation.

Having thus convinced himself that, in spite of its inherent inefficiency, the steam locomotive can still tow more cars for less money than other machines, the student of transport economics will rest his jaundiced gaze upon the freight equipment.

At first, he will see only a smoky wilderness of 2,277,500 cars, "boxes," "gons," "flats," "tanks," and "reefers," each on its pair of protesting trucks. Gradually, however, he will perceive certain significant details, each sustaining a single and singular conclusion: in striving to produce the most cars for the least money, the carriers have inescapably developed a rolling stock which gives the worst performance for the highest cost; and the corollary: the engineering improprieties in the design of these details are causing the waste of hundreds of millions of dollars each year, and they have been doing it for decades!

For examples:

A. The entire car is heavier by one-third than it need be for safe strength. This is the result of the engineering practice of applying an adequate "factor of safety" to the dimensions of wheels, axles, floor beams, etc., then, doubling the size "just for good measure." Thus, the railroads have paid for 11,387,500 tons of useless wood and steel, at $50 a ton, and they are dragging this dead load about the country at an operating expense equal to that of 5,700 fifty-car freights, each running 12,000 miles annually. Since the fixed charges are 15 per cent and the train operating expense is $1.50 per mile, it is evident that *the carriers are wasting $188,600,000 each year, simply because the cars are too heavy.*

B. The couplers are loose connections so that the locomotive may *yank* its train into motion by first "taking up the slack" and then, lunging forward. Nowhere else in all the mechanical world is such callous abuse of property either planned for or tolerated. *The terrific jerks snap draw-bars (at a cost equal to that of the repairs, plus the switching charge, plus the lost train time, at $1 a minute, while the damaged car is being set out on a siding) and necessitate extremely strong and costly car construction, extremely strong and costly crating of frangible shipments, and cost the railroads $27,000,000 in annual indemnities for goods damaged in shipment.*

C. The brakes of the freight car act directly against the wheel-treads. Tires and brake-shoes wear rapidly, are short-lived, and the carriers must spend millions each year for retruing or entirely replacing the wheels. The heat of friction is so great that trains which have been braked down long grades must be halted for from five to fifteen minutes to allow the wheels to cool. The cost of the lost train time is $1 a minute from the instant the brakes are set for the stop, through the deceleration, standing, and acceleration periods until full speed has been regained. Twenty-five dollars to $50 for letting a freight slide down hill without power from the engines. Such is the price paid for divergence from rational engineering design: in most machines, rolling mills, printing presses, hoisting apparatus, elevators, automobiles, etc., brakes are never applied to weight-carrying surfaces, but to special brake-drums. The two notable exceptions to this practice are found in railway equipment and farm wagons.

D. The standard car axle bearing squeezes out all lubricating oil and becomes bone-dry when the car stands still for but a short time. Then, the locomotive must skid the train forward on unlubricated metallic surfaces, ex-

actly as if the car were on sledge-runners instead of wheels. Repeated tests have proved that freight cars on standard "plain" bearings require 8 times as much power from the locomotive and can coast only one-quarter as far as they would on "antifriction" roller bearings, like those of every truck and automobile. Thus, the very devices which should afford ease of motion are effective brakes against the start of every switching operation and road run.

THE cost of overcoming this needless friction is stupendous. Approximately 70 per cent of all railway fuel, $250,000,000 worth of coal and oil is so wasted each year. The average locomotive now weighs 160 tons, whereas an 85-ton engine has sufficient tractive power to start the heaviest train on roller bearings. There are 60,000 locomotives, each of which is overweight by 75 tons, at $200 a ton. The average rail weighs 110 pounds to the yard, whereas an 85-pound rail has sufficient strength to support the lighter engines, which would have sufficient tractive power to start the heaviest train on roller bearings. There are 440,000 miles of main lines, yards, and sidings, *i.e.*, 880,000 miles of rail, every yard of which is overweight by 25 pounds, and rails cost $40 a ton. Whence, any schoolboy may compute that the railroads are overcoming avoidable friction in fuel and fixed charges at a cost of $480,000,000 a year.

More. To these wastages must be added others, equally vast, but not accurately computable: (1) fixed charges on excess steel in all bridges, which must be constructed, not merely strong enough to support a train of cars, but a train of the heaviest engines on the lines; (2) transportation expense of moving 4,500,000 excess tons of locomotive steel over the distance traveled by the average engine each year; (3) fixed investment expenses and operating charges (in excess of steam traction) of all main line electrifications, excepting those of tunnels, terminals, and suburban services; (4) 15 per cent of all track maintenance, since the locomotive is responsible for about one-third of track damage; (5) all car repairs and lost train time caused by hot-boxes, since these do not occur to roller bearings; and the huge loss of time due to low acceleration of every movement of every one of 2,277,500 pieces of rolling stock.

THE total, resulting, is undoubtedly of the order of $300,000,000 annually and the sum of all losses arising from the friction of the plain bearing is approximately $800,000,000 each year. Small wonder that the plain bearing was abandoned by the automotive industry thirty years ago!

❦

¶ "THERE *is no such thing as too much freedom of motion for any transport mechanism. The more any carrier can be freed from the effects of gravity, inertia, and friction, the more nearly perfect it is, and the more nearly perfect must be the devices for control of that motion,* i.e., *the brakes. The brakes of railway equipment are inadequate.*"

And so, the cavalier engineering of such apparently inconsequential details as excess weight, loose couplers, poor brakes, and bad bearings is causing the annual dissipation of $1,100,000,000 of the 6 billions of gross revenues.

Well, gentlemen, there you have it —lo, ye poor freight car, at once the most indispensably valuable and the most prodigally wasteful tool of modern civilization. Not even the electric lamp, which gives out one per cent of its energy in useful light and 99 per cent in unwanted heat can lay claim to that distinction. For artificial illumination is merely a facility in the communal life to which transportation is ever a paramount necessity. Wherefore, the freight car is our closest approximation of absolute zero in mechanical engineering artistry.

Of course, heavy traction proponents contend that these extravagant technological errors are not improprieties at all, but, in reality, are the best engineering compromises between the positive and negative infinities of ideal economy and ideal mechanical performance.

All this is based on the spritely notion that transport organizations, having had a round century of schooling, must have learned their business very well. But Mr. Citizen has begun to gag on that archaic hooey. Too often he has seen railroad policies swim cross-wise of the current of known requirements to have any illusion that long experience necessarily instills the ability to perceive problems and the intelligence to solve them.

For instances:

In 1932, despite public clamor for higher speeds, the *Century* and the *Broadway* were still taking twenty hours for the New York-Chicago run, and a test train hit 103 miles per hour between Chicago and Milwaukee, "to see," as one official phrased it, "just what the steam engine can do." Yet, forty years before, locomotive *999* (a tiny machine, no more streamlined than a switch engine) had whipped the *Empire State Express* over the rails at 112.5 miles an hour—and everyone in the industry knows it. Today, many lines are spending millions for super-speed streamlined, Diesel-electric trains. So much for experience and its consequent policy.

In 1933, the *M-10,000*, a streamlined train, designed by the combined forces of one of the foremost car builders and one of the greatest railroads, and costing a quarter of a million dollars was displayed at "A Century of Progress Exposition," in Chicago. The train was 10 inches narrower than standard coaches, although John Citizen has never complained that sleeping cars are too roomy for comfort; and it had no space provided for personal luggage, although John has always carried a hand-bag on his travels. So much for experience and its consequent policy.

Track tanks (open troughs between the rails from which the locomotive may scoop water on the fly) have been used by a few eastern roads to eliminate stopping high-speed limiteds for twenty-five years. But no railroad in the land has employed these track tanks for the saving of time and money in freight and low-speed passenger services, where the benefits of such usage would be most apparent. So much for experience and its consequent policy.

The Costly Freight Car

" . . . the cavalier engineering of such apparently inconsequential details as excess weight, loose couplers, poor brakes, and bad bearings is causing the annual dissipation of $1,100,000,000 *of the 6 billions of gross revenues. . . . Wherefore, the freight car is our closest approximation of absolute zero in mechanical engineering artistry."*

FOR half a century, complaints have been raised against the showers of soot and cinders with which the carriers abuse their patrons. Some roads have installed air-conditioning apparatus in a few limiteds, at a cost of $10,000 per car and 10 per cent more power from the engine. Such apparatus can never be applied successfully to local and suburban passenger trains where the car doors are opened frequently. Thus, on the vast majority of his journeying, John Citizen may open the windows to admit fresh air and dirt, or he may close them, keep clean, and stifle. No coal-burning railroad has ever yet had the wit and decency to clean up its service by cheaply converting its passenger engines to oil, brickettes, or other smokeless fuel. So much for experience and its consequent policy.

It has been known for years that one-third of all damage to track is caused by the pounding of the locomotives. At high speeds, the vibration of even the most modern engines is intolerable and often dangerous. Recently, however, a few engines were rebuilt for very fast runs. The weights of side rods, connecting rods, counterbalances, etc., were reduced by a half, and other sources of bumpiness were subdued so far as possible. The job was costly, but it was well done and the engines rode smoothly at 100 miles an hour. If such refinements had been incorporated in the original designs of all freight and passenger engines, their first cost would not have been increased by one dollar, but the expenditures for track repairs would have been reduced by several million dollars annually.

THE list of irrationalities goes on and on and on, *ad libitum, ad infinitum, ad nauseam,* to prove that the engineering psychosis which perpetuates them could never evolve the freight car beyond a very crude second approximation of the sturdy, economical, easy-rolling vehicle it should long ago have been made. And it is a safe bet that once its shortcomings are perceived there will be frenzied efforts for wholesale but unwholesome replacements.

That prediction is based on the topsy-turvy philosophy of mass transport which holds that it is better to spend energy and money to neutralize a bad condition than it is to cheaply eradicate the source.

For examples: It is better to supply clean air to passengers through costly conditioners than it is to stop polluting the atmosphere with smoke and cinders. It is better to bale the heat of the summer sun from passenger coaches with costly pre-coolers than to keep the heat out by building protective sheds over the storage tracks. It is better to spend millions for speedy, comfortable streamlined trains than to redecorate and refurnish present trains and tell Casey Jones to pull the throttle wide open. And so on and on, until it will seem better to buy 2 million brand new freight cars than to recondition the present rolling stock.

INEVITABLY, if that policy is carried out, the tremendous influx of fresh money will drive the *work / capital* × *speed* efficiency, to what the brokers used to call "new low levels," and the highest expectable savings will be of the order of a paltry 50 millions annually. This because a very large part of the $1,100,000,000, now lost annually through bad engineering of the freight car is the fixed investment charges on excessive steel in rails and engines. That part of the loss cannot be stopped before these over-sized structures are worn out and replaced with properly proportioned equipment. The remainder of the total money wastage occurs in operating expenses, excess fuel, train time, car repairs, etc. True, these losses would disappear instantaneously on the advent of the fresh rolling stock, but from them must be subtracted the fixed charges on the 4 billions of new investment. Thus, the immediate savings from complete replacement would be relatively small, and the full benefits could not be realized until long after the present generation shall have been trundled off to the churchyard.

However, to gain the greatest good for the least investment, the carriers need make only such adjustments as will tend to conserve operating wastages. And since most of these are caused by friction, the "adjustments" must necessarily be the application of the antifriction roller bearings to all moving equipment, with the single exception of the locomotives. Beyond all question, a billion dollars spent on antifriction bearings will do more to enhance the earning power of the steam lines, than could a similar amount spent for any other purpose, or any reasonable increase in the tariffs. For it would provide that freedom of mechanical motion upon which the earning power of every transport mechanism depends.

IT seems probable that the investment would pay for itself, in conservation of fuel, train time, and car repairs in two, or at the most, three years. But as the saying is, after you've got 'em, what have you got? The freight car trucks, to which the new rollers are to be applied, are overweight, with poor spring rigging and bad brakes. They were obsolete fifty years ago, in spite of the fact that they may have been built only yesterday. By the time the car bodies are ready for the scrap heap, the trucks will be too, and the salvage value of the bearings will be close to zero.

Between the two extremes of equipment improvement, maximum by complete replacement, and minimum by bearing replacement, lies the golden mean of replacing the trucks, with

properly designed ones, at a cost of only about one and one-half times that of the bearings alone. And such trucks, with their good bearings, rightly planned springs, light weights, and effective brakes could be economically transferred from existing car bodies to the new ones as occasion might demand.

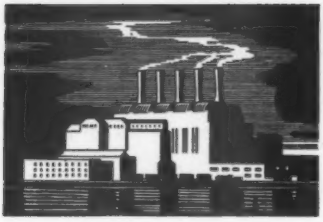
ONE comment remains to be written down and answered. More than likely, transport administrations and operating forces will contend that such equipment will roll too easily. The brakes of standing cars or trains must be set against the gravitational pull on even imperceptible gradients, and the propelling power of every wandering breeze. Again that strangely topsy-turvy philosophy of traction: There is no such thing as too much freedom of motion for any transport mechanism. The more any carrier can be freed from the effects of gravity, inertia, and friction, the more nearly perfect it is, and the more nearly perfect must be the devices for control of that motion, *i. e.*, the brakes. The brakes of railway equipment are inadequate.

To illustrate: A "gravity" or "hump" yard is a set of tracks and switches built on a gentle slope. The locomotive pushes the train to the top of the hill, and the cars, one at a time, are allowed to roll down the other side, and so be switched to their proper train make-up tracks, without further aid from the engine. A brakeman rides with each car and winds down the hand brakes as the car approaches those in the string to which it must be coupled. Thus, the gravity yard is a great time-and-labor saver. Yet, these effective devices are being abandoned, because the riders cannot control the speed of the cars with the ineffectual hand-brakes. The cars, even on their old bearings get out of control, the rider jumps, and the car smashes into the standing string. The wrecks are so frequent and so costly that the railroads are now returning to steam switching.

ALL this is merely to show that the present brakes cannot be operated by hand and are effective only when set by air pressure or vacuum from the engine. Hence, the contention that if roller bearings are to be applied to rolling stock as an economic expedient, then the entire truck must be replaced with one which has brakes which can be set either by hand or air. In that way alone can the first step toward improving earning power be taken.

And it is the earning power of his investment in which Johnny Q. Citizen is most interested. Such technicalities as cars and engines and rails have little appeal for him. In general, he is prone to the belief that the railroads would actually be "doin' O. K., buddy!" if the national government and the Interstate Commerce Commission would stop their meddling.

A glance about his own home will disabuse him. He will see such transportation minutiae as roller skates, baby carriages, and bicycles, equipped with ball or roller bearings, and he will note that even the bicycle and the perambulator have effective brakes and good spring rigging. And once Mr. Citizen is aware of the fact that his small son's toys are better engineered than are his railroads, he is likely to discredit the fancy about regulative interference having much to do with the unprofitableness of steam traction.



Louisville's Twelve Black Days

The great flood of 1937 has passed into history. Its particulars are fast fading, except from the memories of those who went through that harrowing experience. The sketch by the author, an eye witness of the situation in Louisville, which recalls some of the details of the disaster, is typical of the part played by the utilities throughout the entire inundated areas in maintaining an essential service, and in restoring it promptly where temporarily interrupted by the overpowering forces of nature.

By MALCOLM BAYLEY

PROBABLY every radio listener in the United States, at one time or another, heard Station WHAS in Louisville sending out messages of assurance and comfort, appeals for aid, and directions to thousands of unseen relief workers during 187½ hours of uninterrupted service at the height of the great Ohio river flood during January and February. The 115,000 messages sent out by an augmented force of announcers and technicians gripped the heart of the nation by their dramatic intensity. The radio performed a remarkable and an unprecedented service and proved its utility. Yet this could not have been possible except for the heroic but unsung deeds of telephone company workers.

This maintaining of a vital communication service was only one instance of the valiant work done by the public utilities during Louisville's 1937 flood—the worst that ever visited the Ohio valley. Having lived through it—worked and wrestled with it—this writer speaks from first-hand knowledge.

Throughout the entire period when two-thirds of Louisville's area was under from 2 to 32 feet of water, the telegraph companies functioned 100 per cent in bringing in and sending out of the stricken city millions of messages.

The telephone company never ceased continuous work on its long-distance circuits, and only one of its five city exchanges was entirely out of commission.

At no time was the inhabited section without water service sufficient for daily needs. Natural gas was available everywhere in unlimited quantities, except in the severely flooded districts which had been abandoned. Only for a very brief period was there an absolute breakdown of electric service. And while street-car service came to an utter stop, no one went to work because all business was suspended and there was no public movement after a given date except that of refugees and those rendering succor, either by motor car, railroad, or boat.

On the whole the work of the various utility companies in maintaining service in the face of a dangerous and unprecedented condition was nothing short of heroic. Only now can some of these instances of heroism and superhuman effort be told, as their details become known and exaggeration and hysteria have subsided.

A most spectacular incident of its kind was the achievement of the Louisville Gas & Electric Company at its Riverside power plant, on the river bank in the down-town district. This plant was constructed to withstand a flood stage of 47 feet, a point higher than Louisville had ever experienced. But this flood saw over 57 feet of water inundate two-thirds of the area of this city of 350,000.

As the relentless waters approached and encircled the Riverside plant, all openings were battened and a battery of pumps set at work to eliminate the inevitable seepage. Far down below the surface of the earth, firemen and engineers labored at boilers and turbines.

Soon the pressure of the water became so great that walls of the building had to be shored and the floors braced to prevent their being burst upward by the tremendous pressure of the water—underneath! More pumps were put to work. High above the normal surface of the ground, timbers and scantlings were adjusted to keep back the flood which beat and pushed at all four sides.

Far down below the water's surface, negro firemen heaved coal heroically—and sang. Oilers, electricians, stokers all knew that were a break to occur, they would be caught, trapped by the rushing waters. But they asked for no relief and stuck to their tasks. The city continued to enjoy power.

Still, the end was inevitable if the water continued to rise. Company officials understood this and authorities were notified. It was necessary that the load be lightened. By radio proclamation, Mayor Neville Miller announced that traction power would be cut at 4 o'clock on the afternoon of January 23rd. Every employer was warned to evacuate his workers by that time.

Approximately twenty-four hours later, it became a physical impossibility to keep down the seepage in the power plant. Workers were withdrawn in the nick of time, and flood water extinguished the fires. The flood waters had then passed 51 feet.

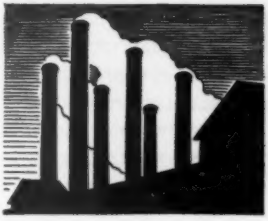
Twelve days later, with plants and most of the cables submerged, current was transferred from the Kentucky Utilities Company's Dix river plant by setting up a huge transformer at the Ohio river crossing, east of Louisville. The shipment of that transformer was a triumph in itself, since railroads were submerged. Only by laying a special section of track in central Kentucky from one line to another was the transfer made. In that twelve days, Louisville learned what it was like to be without the indispensable comforts of electricity.

When radio station WHAS learned that power would be cut off on January 24th, thus paralyzing the work of relief and rescue, station WSM at Nashville was asked to take over the signal and carry on, with messages being delivered into the microphones in the Louisville studios, which hoped to operate on auxiliary battery-operated amplifiers. The next matter was to get a telephone line.

WHAS asked the Southern Bell

Reminder of the Value of Utility Service

"IN normal times we take our utility service as a matter of course, not often considering seriously just how much it means to us, and what the companies have to do to make it continuous and dependable. We are reminded very forcibly, however, of the value of this service when such catashrophes as the great flood this year overtake us."



system for a circuit. But the physical line was under water at Shepherdsville, Ky., over a 15-mile stretch. The circuits seemed out. But maintenance and equipment men were undaunted. They tried all the various circuits and combinations of the 40 wires mounted on the line. Finally lines 1 and 2 gave a faint response from Nashville over a 6,200-cycle circuit. To the amazement of telephone engineers, this worked.

This fragile electrical thread carried WHAS' vitally important messages to Nashville and from WSM to a volunteer network composed of WFBM, Indianapolis; WLAP, Lexington, Ky., and WCKY, Covington, Ky. By Monday, January 25th, this same signal was being carried over the whole country, after a 3-way telephone conversation between WHAS, CBS, and NBC. A network was formed making blanket coverage of the United States and Canada, plus the British Broadcasting System and subsequent foreign networks, which tied in approximately 5,000 short wave stations throughout the world. This was the largest hookup ever established in the history of radio, none of which would have been possible but for the telephone companies' coöperation and service.

WHEN the flood began to attain record proportions, Southern Bell officials called for aid. An army of skilled technicians, engineers, and maintenance men poured in from ten states, most of them by plane. Specialized power generators and alternators came from Tennessee, Missouri, other Kentucky points, and even from as far away as Wisconsin. These were set up under canopies outside telephone exchanges, and they kept the service going when power failed.

Each central office became a fortress, equipped for a siege. Oil stoves were distributed for heat; food, water, and beds and bedding were bought and stocked; gasoline from every possible source was requisitioned for the auxiliary power units.

At the JAckson-WAbash office, the chief down-town exchange, two huge 7,000-pound alternators and a number of smaller generators were raised 5 feet from the ground to be safe from even a 62-foot stage of water. Eight pumps were set up, lifting 200,000 gallons of water out of the basement every hour. For five days they poured water out as fast as it seeped in through wall openings, underground cable ducts, or plumbing. Sandbags kept out surface

water which would have poured in at windows and doors.

In a cafeteria on the ninth floor, 1,200 meals a day were served to workers. Elevator service being stopped, a truck and winch operated a cage outside the building, with a steel cable running through a pulley at the roof.

The achievements of Southern Bell, A. T. & T., and Western Electric made the great flood communication service possible. It would take pages to tell of the heroism of individual effort.

The Louisville Water Company's steam plant and likewise an auxiliary electric plant were flooded, but the employment of a steamboat anchored outside the pumping station kept a small stream of water trickling to the settling basins. Service was limited to two or three hours a day in homes, and while health authorities advised boiling all water, at no time did the supply become unfit to drink.

Service was restored by all utilities in a remarkably few days after the flood waters subsided, the greatest task being the drying of water-soaked underground cables. In the inundated districts, when rehabilitation began, and in the unflooded districts for the brief period of the power breakdown, Louisville's residents learned to appreciate what it was to do without utility service.

This is the other side of the story, aside from the achievements of the Louisville companies. Only such a catastrophe as the 1937 flood is able to bring sharply to universal attention the utter dependence of the entire population upon the great service companies for the smallest detail of their daily lives.

One hundred years ago, the flood would merely have been an incident which forced evacuation of a number of homes. No vast sewerage system then existed to complicate the situation by backing up and adding to the flood. Not a single public utility then operated to bring luxury and comfort. Today's civilization, refined to a degree of which our forefathers never dreamed, is a thing thrown utterly out of joint by injury to these servants of mankind—the utilities.

Louisville's hotels were sad spectacles. Without power for elevators, residents walked up many flights, or stayed in their rooms. Water was not available in the upper floors for any purpose. Heating plants were flooded. Existence here approximated that in the rehabilitated section when the water receded. In the flooded section furnaces might operate where coal was available, but gas mains were full of water and thousands cooked at improvised fireplaces or over steel braziers in the open, or munched cold food. The only lights, for these few days, were kerosene lamps or candles.

Even in the finest homes and apartments in the driest sections of the city, the crippling of service companies brought about conditions that might have been ludicrous to some, but which were exceedingly uncomfortable, if not tragic, for those who underwent them.

In normal times we take our utility service as a matter of course, not often considering seriously just how much it means to us, and what the companies have to do to make it continuous and dependable. We are reminded very forcibly, however, of the value of this service when such catastrophes as the great flood this year overtake us.

LOUISVILLE'S TWELVE BLACK DAYS

Louisville's "black" twelve days—which lengthened into weeks for those in the flooded districts—were a nightmare without the utility service temporarily interrupted. It was an unforeseen situation, but where service was made for a time impossible, it was quickly restored.

As a result of the flood experience this year in Louisville and elsewhere along the river, plans now are being laid for auxiliary service by water and electric companies so that should another such experience ever fall to the flooded cities—an exceedingly unlikely eventuality—citizens will not have to suffer even for a brief period the hardship of interrupted utility service.

Should Uncle Sam Foot the Bill for Reclamation Improvements?

"THE development of hydroelectric power should be considered in the study of all projects, and where feasible power should be included in order that efficiency of water can be increased by double usage and in order that water users may have the benefit of power generation. Flood control also should be considered in the planning of all storage reservoirs, and the cost of providing this benefit should not be assessed against the irrigated lands.

"These plans, together with vigorous prosecution of work now under way and contemplated, will form the future program of the Bureau of Reclamation. However, it would be inconsistent on the part of the West to press demands for further moratoria on project repayments and support these plans for further expenditures. The Congress cannot be expected to continue appropriating funds for construction if representations are made at the same time that completed projects are incapable of returning the investment of the Federal government in them.

"The Western states must also realize that most of the large projects now being proposed are so complex and costly that few can meet the present requirement of the reclamation law that the investment be repaid in forty years.

"The Western states should give this situation serious consideration in order that a determination can be made concerning the method of financing these projects. More liberal terms on the part of the Federal government might be justified in some instances. It is conceivable that state coöperation might be required. Perhaps a different method of assessing the costs of projects would be helpful, especially in instances where there are multiple tangible benefits. Perhaps some other basis can be found. In any case, this subject is worthy of careful thought."

—JOHN C. PAGE,
Acting Commissioner, Bureau of Reclamation.

Financial News and Comment

By OWEN ELY

Are the Utilities Preparing for January 1, 1938?

DOUBTLESS the utility industry remains hopeful that the Supreme Court will outlaw the Utility Act of 1935. But it seems doubtful that the court can pass upon the law before January 1, 1938, when the so-called "death sentence" becomes effective. Executives of some holding company systems may, therefore, be quietly making plans to realign their properties so as to obtain the geographic and economic integration sought under the act. But except for occasional reports of plans to merge operating companies and eliminate subholding companies, there is little indication that any wholesale program is under way for the geographic concentration of our far-flung utility system as contemplated under the act.

Among the systems which seem widespread territorially are American Power & Light, Associated Gas & Electric, Central Public Utility, Cities Service, Commonwealth & Southern, Community Power & Light, Electric Power & Light, International Utilities, Middle West Utilities, National Power & Light, North American, Peoples Light & Power, Standard Gas & Electric, Stone & Webster, United Light & Power, United Public Utilities, and Utilities Power & light.

On the other hand, such systems as the following would appear to have less to worry about, since their operations are either confined to one state or spread over several neighboring states: American Water Works & Electric, Columbia Gas & Electric, Commonwealth Edison, Consolidated Edison of New York, Consolidated Gas of Baltimore, Detroit Edison, Duke Power, Eastern Shore Public Service, Eastern Utilities Associates, Boston Edison, Connecticut Power, Iowa Electric Light & Power, Jersey Central Light & Power, Long Island Lighting, Midlands United, Nevada-California Electric, New England Power, New England Public Service, Niagara Hudson Power, North American Gas & Electric, Otter Tail Power, Pacific Gas & Electric, Pacific Lighting, Penn-Southern Power, Public Service of Northern Illinois, Public Service of New Jersey, Southern California Edison, United Gas Improvement, and Virginia Public Service. The above classification cannot be considered exact, since some systems are in the "border-line" class.

UNDER the law the commission may require each registered holding company to continue its operations to a single regionally integrated system although one or more regionally integrated systems *located in a single state or adjoining states* may be retained if each such additional system cannot be independently operated without loss of substantial economies, etc.

The SEC may (with or without the parent company's consent) apply to a court for aid in carrying out any proposed system reorganization; and the court, if it approves the plan, may appoint the SEC as its trustee to execute it—a neat arrangement to give the Fed-

eral commission full legal powers.

Obviously the utilities may prefer to work out their territorial readjustments voluntarily, rather than be subject to arbitrary SEC rulings enforced by court orders. Professor Leslie T. Fournier of Princeton University, in *The Annalist,* has suggested four methods of complying with the act:

1. *Exchange of securities.* Since many of the diversified holding companies control some scattered properties which might more economically be included in some existing integrated operating system, there should be opportunities for holding companies to arrange exchange transactions with one another. . . .

2. *Creation of new holding companies.* Most of the large systems have two or more unified groups of operating companies, and it has been suggested that new companies could be formed, each to control one integrated system. The holders of securities in the original holding company would then receive securities in the two or more new companies. This method of dissolution was used in breaking up the American Tobacco Company and the Reading Company under the Anti-Trust Laws.

Under such an arrangement holders of common stocks would benefit somewhat at the expense of senior security holders, who would be exchanging a claim against the whole property for separate claims against its individual parts. This difficulty could be overcome by having senior obligations jointly guaranteed by all of the new companies or by giving the holders some additional compensation to offset the slight disadvantage. In the Reading dissolution, the bondholders were given new 4½ or 5 per cent bonds in two new companies in exchange for 4 per cent bonds of the old company. . . .

3. *Distribution of various investments to existing security holders.* Another method would be the distribution of securities in a holding company's portfolio among its own security holders. This would necessitate the retirement of the senior securities as the first step to pave the way for a pro rata distribution of the security holdings that are to be liquidated. If sufficient time were allowed, it should be possible in the majority of cases for a holding company to sell enough of its investments through investment banking channels to enable it to retire its senior securities.

4. *Conversion to an investment company.* The terms of the act make it possible for any holding company to retain intact the ownership of all or most of its assets by becoming an investment company. Under this method the commission would have to be satisfied that each holding company had actually ceased to exercise any controlling influence over the management and policies of those companies which, under the terms of the law, must be separated. Several means of accomplishing this result would be available, among which are (1) enfranchisement of operating companies' preferred stock and (2) a combination of that method with the sale of part of the common stock in the holding company's portfolio, when market conditions are favorable. . . .

Since this plan has the advantage of simplicity and would not require a wholesale liquidation of securities, which the industry most fears, the commission should study its applicability to different holding company systems. An objection remains that it might frequently be doubtful whether or not the original holding company were actually in control of the operating companies, but in the course of time, if new equity securities of the operating companies were sold exclusively to the general public, the elimination of holding company control of scattered operating companies might be realized with a minimum of disturbance to existing corporate organizations.

Security Markets Indicate Returning Confidence

SECURITY markets in July reflected such favorable factors as (1) increased opposition to the Supreme Court "packing" proposal; (2) declining fortunes of the CIO; (3) easing of the French financial crisis; (4) lightening of the Spanish imbroglio; (5) a sharp decline in the incoming flood of gold; and (6) continued favorable business statistics and farm prosperity. War clouds in the Orient are an unfavorable factor, but apparently the markets attach much less weight to Asiatic events than to European diplomatic entanglements. Stocks regained in a few days half the ground lost in several previous months. Utility stocks joined with industrials and rails in the sharp advance of June 28th-July 5th and have since been consolidating their gains.

Following the sudden increase in utility offerings in the previous fortnight, there was no financing of importance in the two weeks ended July 17th, the calendar of SEC registrations having been cleared up. With the exception of $25,000,000 Westchester Lighting 3½s of

1967 expected shortly, there are now only one or two small utility issues on file with the commission.

The excellent reception given to several recent industrial issues will probably encourage immediate resumption of refunding plans. The $45,000,000 American Rolling Mill convertible preferred stock and the 50,000 shares of Monsanto Chemical Co. preferred stock offered July 15th both advanced quickly to premiums. Underwriters reported a large demand throughout the country for the Rolling Mill issue, the public being attracted by the conversion feature, while institutions were also substantial buyers. A smaller issue, $3,500,000 Liquid Carbonic Corp. convertible 4 per cent bonds, immediately advanced to a 6-point premium.

Entrance of the large life insurance companies into the preferred stock field will probably cause an increase in this type of financing. However, with dealers' shelves reported almost bare, bond financing should also be resumed.

Bituminous Coal Industry Opposes "TVA's Seven Sisters"

SENATOR Norris's bill for the creation of regional conservation authorities was strongly opposed at recent Senate hearings by executive secretary John D. Battle of the National Coal Association.

A 13-page bulletin issued by the association, containing Mr. Battle's arguments, presents interesting figures regarding the potential increase in existing power plants and the adverse effects on coal if "Seven Little TVA's" are created. The bituminous coal industry operates in twenty-eight states and probably has more employees than the electric power and light industry—500,000 compared with an estimated 400,000—and 20 per cent of railroad revenue is obtained from bituminous coal. A United States commission has estimated that there is enough coal in reserve to last over 3,000 years at the present rate of consumption. To quote Mr. Battle:

> We said at the outset that TVA's hydroelectric power development program was sure to destroy existing markets for millions of tons of coal as well as to preëmpt future markets for coal. The TVA proponents denied this claim . . . Yet at this very moment at Nashville, Tennessee, we have a concrete illustration of precisely what we had feared and had prophesied . . . The TVA demands the privilege of supplying the private company at Nashville with TVA hydro power, and stands ready to sell the company any amount of power required at a price lower than the company can generate it by steam, irrespective of what that cost may be . . .
>
> The Nashville case is portentous of the future. It will be duplicated 100 times in the Tennessee valley as TVA marches forward. It will be duplicated 1,000 times if government promotion of hydroelectric power development goes forward upon the terms and the scale provided for in the present bill before this committee. . . .
>
> What are the facts with respect to present electric power installed capacity in relation to present consumption? . . . There is already an installed capacity of 36,000,000 kilowatts; the bill under consideration makes possible the installation of 52,000,000 additional kilowatts of capacity. At 60 per cent utilization, the present installed capacity is capable of generating 192,000,000,000 kilowatt hours; at the same rate of utilization the projected capacity would be capable of generating 276,000,000,000 kilowatt hours. Actual production in 1936 amounted to 113,000,000,000 kilowatt hours. This was 59 per cent of the potential production of existing plants, 41 per cent of new potential production, and only 24 per cent of the potential output of the existing and new plants combined.

Bell System Continues Sharp Gains

THE report of the American Telephone and Telegraph Co. and its principal operating subsidiaries for the three months ended May 31st showed net income of $2.72 as compared with 2.42 in the same period of 1936, a gain of over 12 per cent. For the year ended May 31st, $10.50 was earned, compared with $8.13 in the previous year, an increase of nearly 30 per cent.

The net gain in telephones during the first half of 1937 was 529,000, an increase of 155,000 over the gain reported in the first half of last year.

With recent earnings at the annual rate of $11.00 a share, the judgment of the management in maintaining the $9 dividend rate throughout the depression is fully vindicated. Present earnings are the highest since 1929, when $12.57 was earned on a corporate basis (consolidated system figures, not then reported, may have been slightly higher).

Corporate Notes

At a special meeting of 6 per cent first preferred stockholders of Canadian Hydro-Electric Corporation, Ltd., the amended plan for absorption of the company by its subsidiary, Gatineau Power Company, was approved. The new plan provides for exchange of one share of 5 per cent Gatineau Power preferred and one and one-half shares of common for each share of Canadian Hydro first preferred; 5.27608 shares of Gatineau common for each share of Canadian Hydro second preferred; and 12/100 share of Gatineau common for each share of Canadian Hydro common. International Hydro-Electric System holds all of Canadian Hydro's common and second preferred shares.

In the recent hearings on the International Paper & Power Co.'s recapitalization plan before the SEC, the latter was inclined to inquire into the proxy solicitation methods used by the company some months ago to obtain approval of the plan. Another point which came before the SEC was the contention of counsel for a dissenting preferred stockholders' committee regarding the $19,000,000 deficit in the 1936 balance sheet. Mr. Cohen contended that the deficit was a "fake" and represented a breach of faith on the part of the management. Representatives of the company disputed his testimony.

President Behn of International Telephone & Telegraph Corporation has announced an underwriting agreement with Swiss bankers to underwrite $9,150,000 of about $30,000,000 debentures of the United River Plate Telephone Company, Ltd., a foreign subsidiary. The balance will either be sold or retained by the parent company in settlement of the subsidiary's debt to it. The net proceeds of this financing will probably be applied toward reduction of International's bank loans and also to retire a part of its 4½ per cent convertible debentures. Bank loans due November 1st amount to $20,882,160, and $37,661,100 convertible debentures are due January 1, 1939. The United River Plate Telephone Company was originally a British concern, operating in the Argentine. Since 1928 the number of its telephones has increased more than one-half, and indicated earnings for 1937 are estimated at over $4,500,000.

An agreement has been reached between the Ontario government and the Abitibi Power & Paper Company, which should expedite reorganization of the company.

Standard Gas & Electric Company reports that 195 interlocking directorates have been eliminated in the system. H. M. Byllesby & Co. has relinquished all directorates, and the service company, Public Utility Engineering and Service Corp., has been mutualized.

Consolidated Edison's amended offer to stockholders of New York Steam Co. provides for the exchange of one share of Edison $5 preferred for each share of Steam $7 preferred, and nine-tenths of a share of Edison preferred for each Steam $6 preferred. The exchange has now been approved by the public service commission (the original offer was sharply criticized) and by stockholders. The previous proposal included a cash bonus of $10 to the Steam $7 preferred and a full share of Edison preferred to holders of Steam $6 preferred.

The question whether the Interborough Rapid Transit Co. should purchase from the Bankers Trust Co. an amount of its own 5 per cent bonds necessary to meet annual sinking fund requirements is still being debated before Judge Mack, and a decision seems unlikely until September or later. The trust company holds $50,000,000 bonds as collateral for the 7 per cent notes. An alter-

native suggestion is to buy the 7 per cent notes in the open market (around 60), whereby the amount of bonds retired would be about 75 per cent greater than the cash used.

APPALACHIAN Electric Power Company, subsidiary of American Gas & Electric System, is reported considering an $80,000,000 refunding operation. Since a large amount of the subsidiary company's bonds are held by American Gas, their retirement would add considerably to the cash resources of the parent company.

Bus companies, now regulated by the ICC, are experiencing some of the difficulties which have plagued the railroads for decades. Twelve eastern bus operators recently proposed an increase in rates, due to higher costs and safer operating standards, and the new tariffs were suspended by the commission.

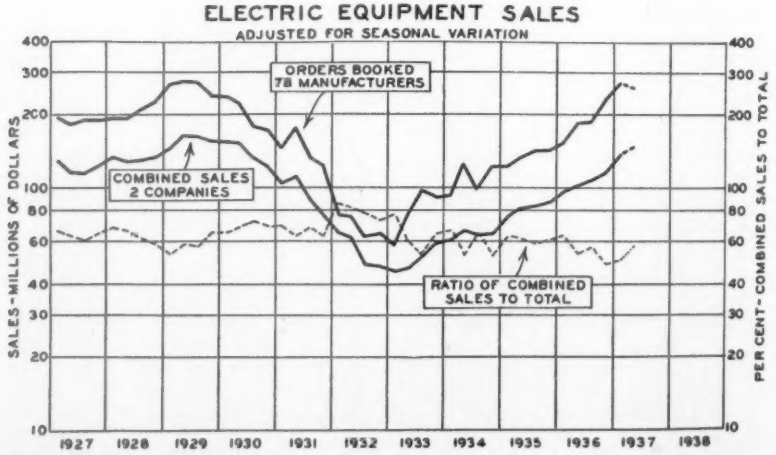
The Department of Justice has decided to request the Attorney General to bring antitrust charges against the Western Union and Postal Telegraph Companies.

El Paso Natural Gas Company reports a sharp gain in earnings for the twelve months ended May 31st.

Increased Efficiency of Steam Generating Power Plants

WHILE sales of electrical equipment in 1937 are expected to approach the 1929 record figure of about $2,300,000,000, a far smaller proportion of the total will be for new generating and distributing equipment. In 1930 utility expenditures for new equipment, estimated at $919,000,000, were a very substantial part of the total. But utility expenditures dropped to $129,000,000 in 1932 and recovered only modestly to $290,000,000 by 1936. This year, according to recently revised estimates made by the Edison Electric Institute, total purchases by public utility companies may reach $475,000,000—even this amount being only a little over half the 1930 figure, despite the fact that other electrical sales are back to peak levels.

With electric output for 1937 estimated at about 28 per cent in excess of 1929, it still remains somewhat of a mystery how the utilities have been able to function with such small additions to plant. The answer doubtless lies in increased efficiency. Last year the industry was able to turn out 3,110 kilowatt



Reproduced from The Annalist

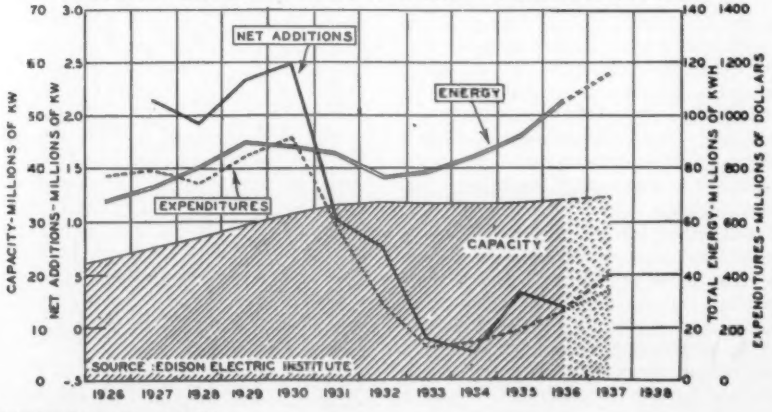
hours per kilowatt of capacity, about 14 per cent more than in the previous year and 50 per cent more than in 1902. According to La Rue Applegate (in *The Annalist*):

> Within the past year or more utility executives have found that they can run their generators faster, or "hotter" as it is expressed, and thus develop additional electricity with no apparent damage to the equipment. Some generators, operating in this fashion, are now producing more current than the manufacturers themselves ever thought possible. Speeding up the generators works best with steam apparatus and is seldom effective with hydro plants. There has also been a marked change in the "peak-load" factor. In pre-depression days the peak-load usually came in winter for the average plant, but with the addition of electric refrigeration, fans, and other items used largely in summer, the peak-load curve has been leveled off. This more constant demand for electricity enables a plant with a given capacity to develop and sell more current during an *entire year* than formerly.

The record of the past decade with respect to electric equipment sales, utility expenditures for construction, output of electricity, etc. is indicated in the accompanying charts. How much further can the industry "tighten its belt" without spending large sums for new equipment? Only the engineers and technicians know the answer. Undoubtedly the slack has now largely been taken up and if financial conditions prove favorable, a considerable volume of "new money" financing will be undertaken in late 1937 or 1938 for plant expansion.

Municipal Plants Making Heavy Profits, Rate Cuts Ordered

It is probably a general impression that municipal rates are automatically kept at such a level as to give consumers the benefits of profitable operations. But this does not seem to be the case in New York state. The public service commission has recently discovered that the profits of many municipal plants have ranged from 11 per cent to as high as 141 per cent. It has therefore served notice on twenty-four municipalities that materially reduced rates should be filed immediately. This action is viewed as setting a precedent. It follows the commission's unsuccessful efforts to obtain full authority from a legislature to limit rate charges by municipalities to the actual cost of service. Many municipalities have been diverting income from electric operations to other municipal purposes.


UTILITY EXPENDITURES FOR NEW CONSTRUCTION
NET ADDITIONS
ENERGY
EXPENDITURES
CAPACITY
SOURCE: EDISON ELECTRIC INSTITUTE
CAPACITY - MILLIONS OF KW
NET ADDITIONS - MILLIONS OF KW
TOTAL ENERGY - MILLIONS OF KWH
EXPENDITURES - MILLIONS OF DOLLARS
1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938

Reproduced from The Annalist

What Others Think

Five Interesting Papers at the Recent Electric Convention

At the very first business session of their meeting, delegates to the Fifth Annual Convention of the Edison Electric Institute, recently held in Chicago, were told by Walter A. Forbush, vice president of the Edison Electric Illuminating Company of Brockton, Brockton, Mass., of the six factors primarily responsible for the rapid electrification of homes in conservative New England. These six factors, Mr. Forbush explained, are those which are bringing customers of his company to an acceptance of present-day standards of "electrical living."

Most important of these, in his estimation, is the community friendliness and belief in the honesty and sincerity of the company which has developed during the years since it was established. Next in importance, he declared, are the company's employees, personally convinced of the soundness of the story they are telling and ready to do all in their power to have permanently satisfied customers. The company uses a plan whereby a district representative takes care of most company contacts with a group of perhaps a thousand customers, reading meters, servicing appliances, selling, and collecting. These representatives know their territories thoroughly, serve the customers to the utmost, and have their full confidence.

Next, in order to gain the coöperation of local dealers, the company organized the Brockton Electric Club, which functions successfully in formulating policies and sponsoring joint activities, and in eliminating complaints and dissatisfaction. Another factor in the company's program has been the development of a sound promotional rate structure and a tradition of voluntary rate reductions as soon as economically possible.

The fifth and sixth factors, Mr. Forbush explained, cover selling plans and policies. The company has developed a selling program that builds from the ground up, and does not neglect the minor appliances which build interest in and desire for larger equipment. The sales effort is continuous, and employs all sound methods, such as special campaigns, contests, prizes for employees, trial rentals, three months' free trial of new equipment as a trade-in allowance on old equipment, and other liberal arrangements for the benefit of customers, and a persistent and continuous campaign of advertising backing up these activities.

A continuance of these efforts, Mr. Forbush believes, "will eventually establish true electric homes with all that they mean in New England."

H. P. Liversidge, vice president and general manager of the Philadelphia Electric Company, also a convention speaker, addressed his attention to the relation of electric utility service as an industry to the youth of America.

Factors which make it attractive to young men, he said, include the industry's relative youth and the basic character of its service. The opportunities still ahead for increasing the efficiency of power generation and distribution in the technical side of the industry, and for its sales, merchandising, and advertising programs are proving definitely attractive to young men of character, vision, and energy.

Mr. Liversidge called attention to the fact that while the industry is

frequently considered as primarily a field for the engineer, it also offers opportunity to the accountant, the man with legal training, salesmen, advertising men, typists, clerks, stenographers, bookkeepers, carpenters, pipe fitters, welders, linemen, mechanics, metermen, switchboard operators, lighting experts, and home economists and personnel workers. He said we must make sure that the younger generation discards the erroneous belief that the electrical industry promises a future only to the technically trained man. He made the following statement:

> In recent years we have witnessed a growing recognition of the importance of men with the ability to deal with people. Engineers as well as others in supervisory positions must have a knowledge of human nature, understanding of and sympathy for people, a sense of justice and fair play, and a loyalty to the men working with them. Such an outlook is particularly necessary in the electric utility industry, because it is built not merely to create new technique but to serve large masses of people who are dependent on it for their welfare and comfort.
>
> The electrical industry offers rewards that cannot be measured in terms of dollars. The very nature of its business, a public service supplying basic needs of humankind, presents opportunities that bring their own rewards. In my opinion, the young man with such ideals will find more rapid progress awaiting him in this field of endeavor than in any other line of business I know. Great opportunities certainly lie ahead for the young men who shoulder the responsibilities.

J. F. Porter, Jr., vice president in charge of sales, Kansas City Power & Light Company, discussed the relation of intelligent salesmanship to the public relations programs of electric utility companies at the Institute's convention.

The general public impression of large organizations is frequently determined by the acts of an individual employee of the organization, Mr. Porter said. A tremendous percentage of the public forms its sole impression of the utility company from the meter reader or some other employee of minor rank. To the public, this individual is the company, and his attitude and character are accepted and believed as being that of the company itself.

THUS any public relations program which a utility company undertakes must begin with the company's employees, from lowest to highest rank. The success of public relations programs, however good and well laid they may be, he said, will be determined to a very large degree by the manner in which the other members of the organizations treat our customers. He stated:

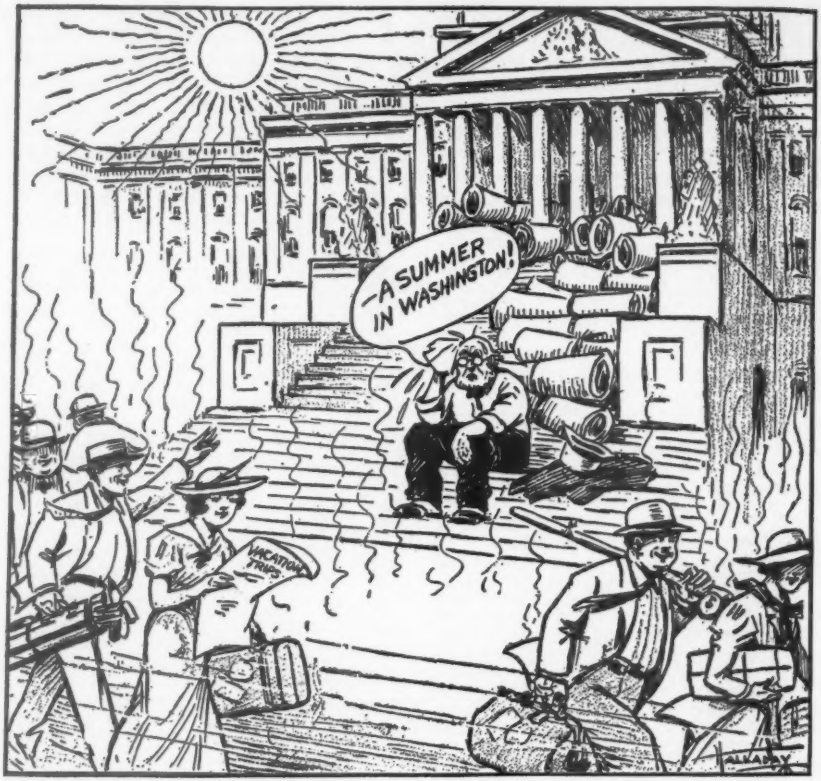
> What good does it do us to lay out public relations plans if the individuals who represent us to the public are daily defeating those plans by handling the public in a poor and even an antagonistic manner? It is foolish for us to lay plans for improving public relations if our own actions in dealing with the public run contrary to the policies we want to enforce.

To overcome troubles of this nature, Mr. Porter recommended a course of education for all employees to make them realize that they are a part of the company and to enable them to understand the benefits of the company's policies and operations. When every representative of the company is salesminded and able to talk as the company's salesman, its public relations are bound to improve. He added:

> A corporation may spread itself over the whole world and may employ a hundred thousand men. But the average person will usually form his judgment of it through his talk with one individual. If this individual is rude or inefficient, it will take a lot of kindness and efficiency to overcome the bad impression. Every member of the organization who in any way comes in contact with the public is a salesman, and the impression which he makes is an advertisement, good or bad.

A discussion of regulations affecting customers' wiring was a feature of the addresses delivered by N. G. Symonds, vice president in charge of sales, Westinghouse Electric and Manufacturing Company, and E. T. Gushee, vice president of the Detroit Edison Company, on the second day of the Chicago meeting. Mr. Gushee stated:

> The adequate wiring of consumer premises constitutes a fundamental problem not yet solved, but the solution must be found in order that the public may have the full benefit of electrical service. We are at one with the manufacturer in our desire to pro-



Courtesy, Providence Journal

ANOTHER THING CONGRESS "MUST" PASS

tect the public by means of certain standardization of regulatory programs, but we object heartily when they are used as a means of freezing quality and unnecessarily increasing costs to the consumer.

MR. Symonds pleaded for mutual coöperation in working out these problems. He said:

> Each branch of any industry is in truth tied in separately to every other branch, and we must solve our problems as well as we can from within the industry, and not in any way seem to invite outsiders in or give them the right to have our differences aired in public.
>
> If we will all submerge our own personal beliefs in arriving at a solution to this problem, I am sure we will benefit the industry as a whole and continue to do our own policing without interference from the outside, be it national or local.
>
> The complexity of the electrical systems and the multiplicity of new developments in apparatus to use electricity have carried the technical problems far beyond those of the old 3-wire lighting system.
>
> The technical adequacy of rules for safe construction, installation, and use must not be left in the hands of local people who do not have full knowledge of all the facts.
>
> The electrical industry has been a rapidly growing industry. It has prospered to a remarkable degree and anyone or any business that has succeeded to a marked degree is always represented by the professional agitator as something that must be regulated, suppressed, and harassed. The theory apparently is that success in a monetary way means that in some way the public has been defrauded. In the electrical industry we know that this success has come from the

development of our industry to serve the public; to make for better living conditions and a vastly increased and widespread use of what a short time ago was a luxury and today is a commodity. Success too often breeds jealousies and we must always be on guard to protect our interests and don't ever forget that our interests are today essentially the public's interests.

STARTLING new products from electrical research were described and demonstrated at the convention by Dr. L. W. Chubb, director of research laboratories of the Westinghouse Electric and Manufacturing Company.

Air may now be cleaned electrically, instead of by filters, by means of a new electric air cleaner which Dr. Chubb exhibited, and cleaned far more effectively. The air cleaner operates on the principle of electrostatic precipitation, Dr. Chubb explained, and will remove from the air particles as fine as cigarette smoke which are too small to be removed by any mechanical filter. He stated:

> Filtering, in the sense of providing pores so small that fine smoke cannot pass through, is impracticable because such pores do not pass sufficient air. Centrifugal devices or attempts to impinge particles onto adhesive surfaces are ineffective in removing fine particles because they travel with the air to such an extent that only a small percentage of the fine dirt is caught.
>
> When charged with 10 electrons, the forces of attraction in an electric field may easily be made a million times as great as the gravitational force alone which nature uses to settle particles out of the air. This is the important advantage possessed by the electrical method. Electrostatic precipitation consists essentially of imparting a charge (of electricity) to each dust particle and then attracting the particle out of the air.
>
> This precipitator is particularly adapted for use where the air is subsequently to be breathed by the occupants of a room. However, we have found it applicable to many industrial processes. In many cases of asthma and hay fever, patients have obtained complete relief while they remain in the room where the air is electrostatically cleaned.

The second research product which Dr. Chubb explained he designated as "polyphase light," which he believes suggests many possibilities in the lighting field, especially for decorative and colored window displays, talking signs, or advertising devices. It is based on the use of polarized light or several components of polarized light of different colors. Of particular interest in this demonstration was its application to automobile lighting. It allows an ample illumination of the road for driving, and at the same time eliminates all glare from approaching headlights.

BY the use of various screens of colored cellophane, varied color effects were achieved merely by moving the screens, and Dr. Chubb expressed the belief that considerable use may be made of this method of using light, particularly for interesting and mysterious window displays.

Dr. Chubb concluded his address by a discussion of the importance of pioneer research. He said:

> Nobody knows what may come out of this fundamental work, or how applications will be made of the knowledge gained. Nobody knew that the twitching of frog's legs in Galvani's kitchen would turn out to be anything important. Nobody knew that the electron would be extensively put to work. Nobody knew that Faraday's parlor tricks for moving a magnetic needle and inducing currents would result in the great electrical industry. We do know, by looking back at these things, that the acquisition of scientific knowledge improves living conditions and advances our industry.
>
> —M. M.

PROGRESS TOWARD ELECTRIC HOMES IN CONSERVATIVE NEW ENGLAND. Address by Walter A. Forbush before the Fifth Annual Convention of the Edison Electric Institute, Chicago, Ill. June 1, 1937.

OPPORTUNITIES FOR YOUTH IN THE ELECTRIC UTILITY INDUSTRY. Address by H. P. Liversidge before the Fifth Annual Convention of the Edison Electric Institute, Chicago, Ill. June 2, 1937.

SELLING. Address by J. F. Porter before the Fifth Annual Convention of the Edison Electric Institute, Chicago, Ill. June 2, 1937.

THE MANUFACTURER'S STAKE IN THE UTILITY BUSINESS. Address by N. G. Symonds and DISCUSSION by E. T. Gushee before the Fifth Annual Convention of the Edison Electric Institute, Chicago, Ill. June 2, 1937.

NEW PRODUCTS FROM RESEARCH IN THE ELECTRICAL INDUSTRY. Address by Dr. L. W. Chubb before the Fifth Annual Convention of the Edison Electric Institute, Chicago, Ill. June 2, 1937.

Experience of Foreign Utilities with Deflation

THE recent trouble with the French franc has caused renewed fears of international monetary inflation. There seems no immediate danger of any runaway inflation serious enough to devalue the dollar here in the United States, notwithstanding our thumping big national deficit which appears to flourish year in and year out. Fortunately, Federal credit is tough enough to stand, for awhile at least, an administration financial attitude which, as someone has wittily remarked, has shifted from considering the national budget problem "serious but not hopeless," to considering it "hopeless but not serious."

Therefore, aside from the relatively unnoticed and slow but steady trend toward credit inflation, American finance is not faced with such an abrupt collision as the French franc experienced a few weeks ago. However, inasmuch as inflation and currency devaluation in one country cause monetary jitters in others, particularly in the case of countries so closely linked in by stabilized agreements as France, England, and the United States, we have a current revival discussion of what could happen here in America if and when inflation comes. And by reason of the fact that specially regulated industries, such as public utilities, are particularly vulnerable to inflationary attack upon their fiscal front, it is only natural that utility management should be well in the foreground with ears extended while such discussion is going on.

Such being the case, a recent article in *Financial Chronicle,* by Ernest R. Abrams (surely well known to all regular FORTNIGHTLY readers), should command some attention. Mr. Abrams addresses himself to the question of what American electric utilities can expect if inflation comes, by using the practical device of analyzing what did happen to electric utilities in certain foreign countries when inflation struck over there—namely, France, Germany, and Italy.

Mr. Abrams' study is especially fortunate by reason of the fact that these three countries, by coincidence, present three typical, different examples of utility control short of outright 100 per cent national control as in Soviet Russia. These three national "case histories," so to speak, could hardly have been better selected by a laboratory economist.

FIRST there is Germany, where the proportion of municipal plants to private public utilities was approximately the reverse of our own situation, with the municipal plants doing the vast bulk of the total business and private operations mostly confined to side-line activities of other industries. In other words, in Germany municipal ownership is the rule and private ownership the exception. In France, private ownership is the rule and municipal ownership practically unknown for the reason that government regulation was so strict (and still is) that there was little incentive for public ownership. Indeed, French public authority practically enjoyed the power of management without the responsibility of ownership. Why need it go further? In Italy (before Mussolini) still a third situation prevailed. The vast bulk of electrical operation was under private ownership, and management was left without much governmental control. Electric rates in Italy were allowed to find their own level without governmental help.

So there we have a neat trinity of specimens: Germany — public ownership; France—regulated private ownership; Italy—unregulated private ownership. Thus, whatever were the separate reactions to inflationary experience, there could still be no alibi on grounds of political control.

Mr. Abrams' tables graphically indicate the depth of monetary inflation which started in Germany in 1919 and ended with a completely reorganized monetary system in 1923; began in

France in 1921 and ended with a devaluation of the franc to 20 per cent of its former value in 1926; and began in Italy in 1919 and ended with a devaluation of the lira in 1926 to 25 per cent of its former standard:

WHOLESALE PRICES

Germany—960 in 1920; 119,300 billion in December, 1923.
France—337 in 1921; 854 in December, 1926.
Italy—251 in 1919; 603 in December, 1926.

WAGES

Germany—3,500 in April, 1922; 107,760 billion in December, 1923.
France—260 in 1920; 452 in December, 1926.
Italy—250 in 1919; 605 in December, 1926.

COST OF LIVING

Germany—850 in 1919; 124,700 billion in December, 1923.
France—309 in 1921; 505 in December, 1926.
Italy—205 in 1919; 649 in December, 1926.

INDUSTRIAL PRODUCTION

Germany—45 in 1919; 80 in December, 1923.
France—92 in 1919; 172 in December, 1926.
Italy—70 in 1919; 165 in December, 1926.

GOLD VALUE OF CURRENCY

Germany—60 in 1918; 10 in 1919; 3 in 1921; no value thereafter.
France—95 in 1918; 55 in 1919; 32 in 1920; 18 thereon through 1926.
Italy—81 in 1918; 45 in 1919; 22 thereon through 1926.

AND what did the respective German, French, and Italian electrical utilities do while all this monkeying with the currency was going on? Mr. Abrams tells us:

> While rates were sharply increased in all three countries during their periods of drastic currency inflation, the procedure through which such advances were determined differed widely. In Germany, haphazard estimates by each utility—municipally owned for the most part—determined the number and size of rate increases and nothing in the meager data available would indicate that use of any of the accepted indices as a basis or that any concerted action was taken by the electric utility industry as a whole. In France, however, as soon as changing economic conditions began exerting an adverse effect on utility operations and costs, electric rates in each supply area were quickly geared to an index of the cost of fuel and the average hourly wage of employees, which index was periodically revised under the Minister of Public Works. As early as 1919, when rising exchange rates began boosting utility operating costs, the Italian government decreed that electric utilities, even when bound by long-term private contracts, should advance all rates substantially and further decrees attempted to keep rates in line with continued increases in labor, fuel, and material costs, eventually placing rates to private consumers at 360 per cent of those in effect before the 1919 decree.
>
> Despite numerous and substantial rate increases, operating costs in all three countries increased at a still more rapid pace, with the result that sizable operating deficits were incurred during each year of serious inflation by all of the electric utilities in each of the three countries. In Germany, where inflation was far more disastrous in its influence on labor and material prices than in the other two countries, one utility revised its rates upward 28 times during 1923 without ever catching up with rising operating costs. However, the ability to increase rates at will in Germany and the coöperative efforts of friendly governments in France and Italy in gearing rates to rising costs, even though the mechanisms adopted did fail to operate with sufficient celerity to match growing costs, did result in the electric utilities of all three countries emerging from the inflationary periods within a reasonable reaching distance of comparative solvency.
>
> Although a few utilities in each country took advantage of their depreciated currencies to extinguish or reacquire their funded debts at fantastic discounts, little benefit accrued to them since mounting operating deficits during inflation years plunged them just as far or farther into debt by the time stabilization of their currencies had been effected. And when the inflationary periods had passed and currencies were again on a gold convertibility basis, it was found that none of the electric utilities in any of the three countries had received any benefits from inflation but, on the other hand, varying degrees of injury had been sustained.

COMING back to America, Mr. Abrams tells us that the antagonism which the present administration has shown toward privately owned electric utilities is of the utmost importance in any inquiry into their probable behavior under serious inflation, since "only through the willing coöperation of central governments in the raising of service rates to partially offset rising costs were the electric utilities of France and Italy able to escape, in part, from the

terrific burden which serious inflation heaps on enterprises where selling tariffs are publicly regulated."

By using approximate percentages for the "big three" items of operating expense—labor, fuel, and materials (taxes not considered), Mr. Abrams is able to focus upon a common denominator to show what American electric utilities may experience under inflation in terms of what their European companion industries did experience. In the United States, electric utilities spent about 17.1 per cent of their total operating and maintenance costs for fuel, 38.4 per cent for wages and salaries, 18.2 per cent for assorted materials and supplies—making a total of 73.7 per cent of the combined operating charge.

In 1936, labor, fuel, material, and other operating and maintenance costs of electrical utilities in the United States amounted to $934,200,000 of gross revenue, while the tax collector's bite amounted to an additional mere $237,500,000—leaving a balance of about $1,023,800,000 available for depreciation, fixed charges, and dividends. Of this amount depreciation accounted for about $200,000,000 and interest on funded debt for $483,800,000—leaving a final slice of $340,000,000 for the stockholders.

The effect which inflation would have upon this margin of electric utility profit would depend, of course, upon the severity of the inflation, and the rather vague possibility of augmenting gross revenue through increased rates or increased service or both. But to get a picture of what would happen under any given stage of inflationary devaluation of the American dollar—10—20—100—or 200 per cent, is simply a matter of mathematics. Figure it out with your own pencil and paper for the other percentages and then cast your eye back at Mr. Abrams' inflation tables for France, Italy, and Germany, and decide for yourself whether "it can't happen here."

MR. Abrams gives us a hint of the progress of the inflationary invasion and utility rates bearing in mind the likely political resistance of American regulatory authorities to increased rates for electric utilities (inflation or no inflation) and the little likelihood of increased value of service under circumstances of inflation:

> Operating expenses naturally must be paid currently, and theirs is the first claim on operating revenues. Depreciation, being an accounting charge and not a cash claim, may be slighted or temporarily waived, but any continuation of this procedure would ultimately result in the extinguishment of the plant and property of the industry. However, during a temporary economic disturbance, depreciation might be deferred and, to that extent, its lien on revenues might be subjected to that of the funded debt. Interest on indebtedness of any character and under all conditions enjoys an undeniable claim on revenues, since receivership is the penalty for failure to meet its demands, and even under serious inflation, interest charges, would have to be met. Amortization and similar charges might be temporarily deferred as in the case of depreciation, while dividends on all classes of stocks could naturally be interrupted without severe penalties. Therefore, some $1,334,200,000 of the 1936 claims on the operating revenues of the electric utilities would have had to be met under any and all conditions if receivership was to be averted, while the claims of depreciation, amortization, and dividends, totaling $897,300,000 might have been temporarily deferred under conditions of great economic stress.
>
> Summarizing, the 1936 labor, fuel, and material expenses which would have been most adversely affected by serious inflation totaled $689,000,000, while the 1936 claims against revenues which might have been temporarily waived totaled $897,300,000. Accordingly, labor, fuel, and material costs could have risen 130 per cent during 1936 before the cushion of $897,300,000 was exhausted and receivership would have threatened.
>
> As an example of the adverse influence which rising labor, fuel, and material costs exert on the earnings of electric utilities in the United States, the combined experience of 10 major operating companies during the eight war and recovery years from 1915 through 1922 might be cited. Consolidated Gas of Baltimore, New York Edison, Commonwealth Edison, Detroit Edison, Boston Edison, Cleveland Electric Illuminating, Union Electric Light & Power of St. Louis, Pacific Gas & Electric, Southern California Edison, and Milwaukee Electric Railway & Light, collectively, reported total operating revenues of $106,107,069 and net revenues available for fixed charges of $38,938,444 in 1915. During each of the ensuing seven years, with one minor exception, both oper-

The Washington Post

NOT MUCH OIL FOR TROUBLED WATERS

ating and net revenues advanced, but the increases in operating revenues were not matched by corresponding advances in net revenues. (Operating revenues totaled $252,889,136 and net revenues $83,751,799 in 1922—just to complete the picture.) Operating expenses, depreciation, and taxes consumed 63.30 per cent of total operating revenues in 1915, 62.25 per cent in 1916, 66.50 per cent in 1917, 68.30 per cent in 1918, 68.55 per cent in 1919, 73.15 per cent in 1920, 69.20 per cent in 1921, and 66.90 per cent in 1922. And when the rise in operating costs of the war period could force an advance of nearly 10 percentage points in the average operating ratio of these utilities, some idea may be gained of the fantastic boosts in operating ratios which could result from sky-rocketing costs under serious inflation.

Of course, Mr. Abrams admits there would be differences in the severity of inflation onslaught with respect to the

particular properties. Systems depending mostly on hydro, such as the Niagara Hudson, Duke Power, Consolidated Gas of Baltimore, would not be so hard hit by advancing fuel prices and would escape labor burdens more easily (by reason of lower personnel requirements) than systems largely dependent upon fuel plants, such as Boston Edison, Detroit Edison, or Commonwealth Edison.

Again, some utilities having elastic operating expense clauses in rate contracts or schedules (such as, Consolidated Edison of New York city, and Cincinnati Gas & Electric Company) would be greatly helped by such partial automatic relief. —E. S. B.

ELECTRIC UTILITIES UNDER INFLATION. By Ernest R. Abrams. *Financial Chronicle.* May 1, 1937.

Will the Doctor Join the Utility Family?

BACK in the days of Charles II, the medical profession was regulated just about in the manner that public utilities are regulated today, making due allowances for the difference in the mode and tempo of the times. Rates and service of barber-surgeons and the more homeopathic variety of medical men were fixed, or at least supervised, by official order; but so also were the rates and services of bakers, brewers, butchers, ferrymen, and a host of other trades and professions which are today regarded as the backbone of the capitalistic bourgeoisie.

Under prevailing law, in the United States doctors are subjected only to rigid governmental regulation as to their qualifications and ethical conduct. Whom they should serve and how much they should charge for service is entirely a matter of agreement between doctor and patient. Yet, at the recent national convention of the American Medical Association in Atlantic City, attended by over nine thousand of the cream of the profession, there arose serious discussion of "socialized medicine."

Such discussion at such a meeting may puzzle the casual layman first because the American Medical Association is a national body of a reputed conservative caliber, similar to that of the American Bar Association; and, furthermore, the plan of socializing medical science is suggested in such a way as to place a portion of medical practice in the substantial status of a public utility.

Here is the set of public health plans presented to the American Medical Association convention by Dr. Samuel Joseph Kopetzky, noted New York octologist, leader of a group of doctors who have been studying the social problem of medical care for the indigent, which became so pressing during the depression:

(1) Every one of the 150,000 U. S. doctors must become an officer in the Federal Public Health Service, the government to pay

Réaltiés, Brussels

When doctors become bureaucrats, it will be illegal to suffer after six o'clock

for all the preventive medicine which they practice in their offices, such as immunizations against smallpox, diphtheria, typhoid.

(2) Every person who expects to be unable to pay his doctor, nurse, drug or hospital bill must register with a government bureau which will pay such bills out of tax money.

(3) The Federal Treasury must pay the expenses of all public hospitals, and the deficits of all voluntary (supported by private charity) hospitals, and finance construction of new hospitals.

(4) The Federal Treasury must pay the deficits of all first-class medical schools and subsidize the expansion of medical schools.

THE weekly magazine, *Time*, gives the following amusing description of the reaction at Atlantic City to Dr. Kopetsky's "axioms of public health":

Roared Dr. Morris Fishbien of Chicago, editor of A. M. A. publications and spokesman for medical orthodoxy: "The tradition of medicine since the earliest times has been one of service—a service dependent for its success in the curing of disease on mutual responsibility between the doctor and his patient. The American Medical Association has established principles which must govern this relationship between doctor and patient. The purpose of these principles is to maintain for the public the highest possible quality of medical service. As long as human beings are themselves not standardized it will not be possible to provide them with a standardized doctor. Every system of medicine and every change in the nature of medical practice which breaks down this relationship tends to lower the quality of medical service. It is characteristic of medicine, therefore, that it is practiced as an art and as a science, without any reference to hours of work or any fixed formula for its administration. These are the characteristics of the profession and the question which we must answer for ourselves and for the people is simply the queston as to whether medicine shall remain a profession or become a trade."

But the Kopetsky-Lape program embodied so much prudent common sense that for two days and a night some of the hardest heads in the U. S. wrangled. What would doctors get out of this? What their patients? Who would run U. S. medicine? A sentimental sociologist like Secretary of Labor Perkins or a political Relief Administrator like Mr. Hopkins? Or a doctor like Surgeon General Parran? Or a medical oligarchy like the A. M. A.'s Secretary-General Manager Olin West, Lobbyist William Creighton Woodward, and Editor Morris Fishbein?

In the course of heated debate, Dr. Kopetsky argued that doctors could get their bills paid promptly, but that the government would set regular fees for family, clinical, and specialist service. Doctors would no longer be obliged to work for charity as most now do voluntarily without official recognition. The social question, it was urged, demanded recognition and solution; unless the association handled the matter on its own initiative, other and perhaps less understanding political hands might tackle the problem. Under the Kopetsky plan—doctors would continue to control American medical practices; the government would merely act as clerk to publish fees and keep books. After much debate, the association sent the following somewhat noncommittal resolution to President Roosevelt:

The American Medical Association reaffirms its willingness, on receipt of direct request, to coöperate with any governmental or other qualified agency, and to make available the information, observations, and results of investigation, together with any facilities of the association.

IMMEDIATELY after the publication of this resolution, Senator James Hamilton Lewis of Illinois went to the Atlantic City meeting with what he hinted was a message of unofficial response from President Roosevelt.

No immediate decision, either by the American Medical Association or in Washington, was reached but Senator Black of Alabama did reintroduce a resolution for an investigation of a "national public health policy" with which the American Medical Association promises to coöperate. Whether "socialized medicine" will come of this is in the lap of the gods, but many who are not doctors, and some who are said to be lawyers, are watching developments closely. If socialized medicine comes, can socialized legal practice be far behind?

—F. X. W.

NATIONALIZED DOCTORS? *Time Magazine*. June 21, 1937.

PROCEEDINGS of the American Medical Association at National Convention, Atlantic City, New Jersey, June 14-18, 1937.

The March of Events

SEC Announces New Rules

THE Securities and Exchange Commission on July 14th announced the issuance of two rules under the Public Utility Holding Company Act of 1935, dealing with relationships between foreign subsidiaries which obtain exemption pursuant to §3(b) of the act and other holding companies of the same holding company system.

Rule 12B-1 was adopted pursuant to §12(b) of the act, which prohibits loans or extensions of credit or agreements to indemnify between companies of the same holding company system in violation "of such rules and regulations or orders as the commission deems necessary or appropriate in the public interest or for the protection of investors or consumers or to prevent the circumvention of the provisions of this title or the rules, regulations, or orders thereunder."

Rule 12B-1 is intended to prevent circumvention of the provisions of the act resulting from extensions of credit by nonexempt holding companies and subsidiaries to foreign companies which have been exempted from the provisions of the act. This rule prohibits such extensions of credit in excess of a certain prescribed minimum, unless specifically authorized by order of the commission.

Rule 3D-7 was adopted pursuant to §3(d) of the act, which authorizes the commission to adopt rules exempting classes of persons from obligations imposed upon them as subsidiary companies or affiliates and to provide that persons so exempted shall not be deemed subsidiary companies or affiliates, within the extent of any such exemption.

The rule was said to serve the technical purpose of enlarging the scope of any exemption granted pursuant to §3(b) to a foreign subsidiary company so as to include exemption from obligations imposed upon the foreign subsidiary as an affiliate under §9(a)(2) of the act, and also to exempt in certain respects the domestic parent company as to transactions within the extent of the exemption which may be granted to its foreign subsidiary.

TVA Negotiates Power Contract

TVA has negotiated a new contract to sell power to Aluminum Company of America plant at Alcoa, Tenn., estimated to yield the government $1,500,000 annually, the TVA office at Washington announced last month.

The new contract provides for the sale of 30,000 kilowatts of firm power and 30,000 kilowatts of run-of-steam secondary power, which is defined in the agreement as power available at least 75 per cent of the time over a 10-year period. The firm power was priced at $60,000 per month, while the secondary power was priced at $1,800 per day. According to the TVA'S announcement the firm power rate, which amounts to $24 per kilowatt year, is the standard TVA rate to municipalities "adjusted to a 100 per cent load factor."

The contract provides delivery of power shall begin June 1, 1938, and runs for twenty years, subject to cancellation on five years' notice after the first five years.

TVA and the company were said to have also amended their 1936 contract to provide for the optional purchase, by the company, of a maximum of 40,000 kilowatts of "dump" power when available on the basis of annual commitments. This power is priced at 2.2757 mills per kilowatt hour.

The 1936 contract has also been amended to provide for the sale by Aluminum Company of power to TVA coöperatives in north Georgia. This area, according to TVA announcement, cannot now be served from the authority's transmission lines, but is within convenient transmission distance of the lines of Nantahala Power & Light Company, an Aluminum Company subsidiary.

Asks Radio Probe

SENATOR Wallace H. White (R.) of Maine introduced a resolution in the Senate last month calling for a "thorough investigation" of the radio broadcasting industry. The investigation would be conducted by the Senate Interstate Commerce Committee.

The resolution lists thirty specific phases into which the committee is directed to inquire and cites numerous "charges" and "beliefs" of laxity by the Federal Communications Commission. Among the specific items singled out for investigation are the financial structures of broadcasting companies, the effect of holding companies on the control over stations, affiliation or ownership by newspapers and the "effect of chain associations on licensees' control over the station."

Court Seeks Details

NINETEEN Southern power companies challenging the constitutionality of the Tennessee Valley Authority act in the U. S. District Court of Tennessee were directed on July 7th by District Judge John J. Gore at Cookeville to set out in particular, in so far as possible within the next thirty days, acts of

the TVA power program the companies consider unconstitutional.

Some time ago, the authority filed a motion before Judge Gore demanding the complainants file a bill of particulars. On June 28th, Judge Gore overruled almost the whole of this motion.

In a clarifying statement to attorneys for both complainants and defendants at Cookeville, Judge Gore qualified his limitations to the overruling order to say that "complainants shall furnish such particulars in these respects as they are able to do within a reasonable time not exceeding thirty days from entry of this order, but that complainants shall not be precluded from proving such matters at the trial, if they have not come to their knowledge within time to notify counsel for defendants before the trial."

TVA Area Mapped

COMPLETION of a map so accurate it records the position of every town, road, bridge, and wooded area in the Tennessee valley was announced recently by the Tennessee Valley Authority. G. A. Bock, assistant chief engineer of the TVA, said it covers "a region of 41,016 square miles—four-fifths the size of England." The TVA was assisted in preparing the map by the United States Geological Survey, Bock declared.

Albert S. Fry, head engineer in direct charge of the work, asserted it required about 500 men working three and a half years to finish the project. Fry said the project was rushed since "absolutely accurate maps, so necessary in the construction and planning phases of the authority's activities, were nonexistent when TVA was created."

The finished map was made of 783 quadrangles, each covering about 60 square miles of territory and scaling 2,000 feet to the inch. The quadrangles were formed of pictures made from airplanes flying at an altitude of about 15,000 feet. TVA engineers used 8,000 pictures in charting the map, each picture overlapping the next in line of flight by at least 60 per cent, it was said.

Power Region Bill Shelved

WITH the culmination of the Supreme Court reform bill struggle in the Senate and the apparent desire of Congress to adjourn as soon as routine legislation can be disposed of, small hope was held out for final action upon similar bills by Senator Norris of Nebraska, Representative Mansfield of Texas, and Representative Rankin of Mississippi, to set up seven regional authorities throughout the United States with powers somewhat analogous to those of the Tennessee Valley Authority.

Following his election as majority leader to succeed the late Senator Robinson of Arkansas, Senator Alben Barkley of Kentucky strongly hinted that only necessary legislation, and possibly the modified wages-and-hours bill would be considered by the Senate before adjournment. This would mean the shelving not only of the so-called seven TVA bills but also the Lea bill to regulate interstate natural gas operations, and the Minton bill, making a reasonable return upon prudent investment a prima facie evidence of reasonableness of rate orders in United States courts.

Hearings were held on July 20th on the House bills proposing to establish the seven regional authorities (H. R. 7365, H. R. 7392, and H. R. 7863) before the House Rivers and Harbors Committee. Chairman Mansfield presided. Congressman Rankin made a statement, going into a general discussion of the bill and electric power rates throughout the United States. He stated that utility commissions were powerless to control rates because the great holding companies controlled them in one way or another. He blamed high rates on watered stock, lobbying, newspapers' control, high salaries, over valuation and useless officials. He also compared his bill with the Mansfield bill.

State Senator W. B. Rodgers of Pennsylvania, president of the Tri-State Authority, with offices at Pittsburgh, appeared before the committee. He said his organization's only interest in the pending bill was its possible effect on flood control protection. He contended that a comprehensive plan for flood control is already drawn and that the work is ready to proceed; if the pending bill were to cause any delay his organization would be opposed.

The hearing was continued the following day. The witness was to be Karl S. Dixon, secretary of the Action Committee on Flood Control of the Ohio Chamber of Commerce.

Two letters were submitted to the committee on July 20th, the first by Harcourt A. Morgan, vice chairman of the Tennessee Valley Authority, endorsing the measures; a letter from Josephine Roche, acting secretary of the Treasury, objecting to the provisions of the bill that cover pollution of streams; and a letter from Harry L. Brown, acting secretary of the Department of Agriculture, endorsing the general policy of the bill and submitting many proposals for amendment.

NRC Report Covers Power

THE subcommittee report on technological trends recently released by the National Resources Committee made several references to national planning and conservation of natural resources, in addition to separate chapters on electric power and communications. Although the general tone of the document was socially "liberal," there was a generous sprinkling of conclusions surprisingly realistic on the subject of power development and rural electrification. The economy of hydro generated power as compared with fuel-generated power was questioned.

Alabama

Files Protest Against REA

THE Alabama Power Company on July 14th protested before the state Public Works Board the proposed construction of 235 miles of power lines in Cherokee county by the Cherokee Electric Membership Corporation.

The board had previously approved a mortgage plan between the corporation and the Federal Rural Electrification Authority for construction of the lines. The power company sought a rehearing of the case on the grounds they were not informed of the previous hearing and were not represented before the board.

The state Rural Electrification Authority has charged the power company with "spite work" in building lines over routes previously surveyed by the authority. Thomas W. Martin, president of the Alabama Power Company, has denied the charge, saying the lines were part of his company's expansion program.

The state Public Works Board subsequently declined to reconsider its approval of construction of the line. The board's action sustained a motion filed by Hugh Reed, Sr., attorney for the Cherokee Electric Membership Corporation, asking the board not to reconsider its previous action. Reed argued law did not require the board to give notice of hearings, and that the matter was now out of its hands because a $310,000 note and mortgage had been executed with the Federal government, a contract let, and materials purchased.

Arkansas

Defends TVA Contract

DAVID E. Lilienthal, director of the Tennessee Valley Authority, recently was called on to defend his contract with Harvey C. Couch, president of the Arkansas Power and Light Company. His agreement to furnish TVA power to the Arkansas concern has aroused vigorous criticism both in Washington and Arkansas.

Lilienthal said the TVA could not demand reduction to "yardstick" levels of Arkansas Power and Light rates because of the small amount of power it is to sell. However, he expressed belief that Arkansas consumers would benefit.

A public power bloc in the U. S. House of Representatives, led by Congressman John E. Rankin, Democrat of Mississippi, has asked President Roosevelt to discard the contract. It protested that the contract does not provide for resale of power at TVA rates. Lilienthal said he would go to Washington to confer with Rankin at the latter's invitation.

The TVA director said the contract provided the Arkansas company would "reduce its rates as soon as TVA power is available by the full amount of the saving to be realized at the end of the third year of the contract." He added this would "mean a saving of about $100,000 a year to Arkansas consumers, based on the purchase of 40,000 kilowatts from TVA. The saving will be put into effect the first year."

California

City Must Pay

THE Los Angeles county government cannot legally give the city of Los Angeles a free franchise for use of county-controlled streets formerly used by the Los Angeles Gas and Electric Corporation and now occupied with the equipment of the city's department of water and power.

Under a ruling released July 15th from the office of County Counsel Mattoon, the city of Los Angeles must pay the county the same franchise fee that was charged the utility corporation. The charge was 2 per cent of the gross receipts in county area served with power.

The opinion, it was said, reversed a former one which held that the state legislature granted cities the right to use public streets with their utilities without a franchise. In his latest opinion the county counsel held that such action on the part of the legislature is in violation of a portion of the state constitution which prohibits a gift of any public property to an outside agency. The city, in this case, is held to be an outside agency.

The county counsel's opinion also held that the city, in acquiring the lines of the Los Angeles Gas and Electric Corporation at the same time acquired the rights of way which had previously been granted by the county to the corporation and that use of them can be only under a franchise granted by the county the same as to the corporation. It was expected that the county would make a demand on the city for payment of the franchise fees.

Florida

Bus Vote Scheduled

THE Miami city commission on July 14th set August 10th as the date for a special city election on municipal operation and ownership of "transportation" facilities. The action came as the commission apparently adopted, as its best course out of the quarrel over bus operation, a decision to let the people vote.

But under the ordinance adopted, it was said, observers saw inclusion of taxi companies, sightseeing busses and other local transportation facilities, which probably would bring on another fight.

Action toward a referendum came after Charles B. Selden, who said he was "temporary chairman of the Citizens' Transportation Committee," spoke against a proposed bus franchise for the George B. Dunn operated Miami Transit Company. The proposed franchise precipitated the bus battle earlier in the month and brought from the Florida Power & Light Company, operators of the municipally owned street car system a threat to take the proposed franchise into court.

Commissioner R. C. Gardner has been a staunch advocate of municipal ownership, and was joined in opposing the proposed Dunn bid by Commissioner Alexander Orr, Jr., who objected primarily to the proposed franchise because it would allow direct competition with the street cars.

Rate Parley Delayed

ADOPTION of the new fiscal budget and clearing the decks of more pressing business will be accomplished before the Miami city commission and officials of the Florida Power & Light Company enter negotiations looking to settlement of their controversies, including compromise of the electric rate case.

City Manager A. D. F. Bloocworth was instructed early last month to notify the power company it would be at least thirty days before the city would be ready to give the round-table discussions their undivided attention.

Commissioner R. C. Gardner, who hopes to negotiate a trade whereby the city would take over the water distribution system in return for dropping the rate litigation, asked for immediate consideration, but the other commissioners called attention to the fact the discussions would involve much time and work, and pointed out the current business which must be finished.

Georgia

Reduces Phone Charges

WITH the approval of the state public service commission, the Southern Bell Telephone & Telegraph Company on July 14th announced a reduction in intrastate long-distance charges and in special service charges and at the same time extended the urban areas in which local service is given at flat rates.

The new schedules, which became effective at once, were worked out by representatives of the company and Chairman Jud P. Wilhoit of the state commission. The long-distance rate schedule had not been completed at the time of the announcement, but it was announced that in the future most rates would be based on mileage and the reductions would be similar to those recently ordered by the Federal Communications Commission for interstate service.

The chief extra service charge eliminated was that for handset telephones on which customers have been paying an extra 15 cents per month after paying a $1 extra installation charge. In the future such sets will be installed for $1.50 and there will be no monthly charge.

In announcing the agreement on the new rates, Chairman Wilhoit said the telephone company had agreed to withdraw an action pending in the Federal court seeking to dissolve a reduction order issued three years ago and at the same time the commission was cancelling a rule nisi calling on the telephone company to show cause why special service charges should not be reduced.

The basic rate areas were to be enlarged in Atlanta, Augusta, Macon, Americus, Gainesville, Rome, Savannah, Columbus, LaGrange, and Thomasville.

TVA Called "Menace"

POWER expansion activities of the Tennessee Valley Authority were branded as a "menace" to public utility companies last month by Preston Arkwright, president of the Georgia Power Company. Arkwright, appearing before the state public service commission, said "there is no question of Federal persecution" in activities of the TVA. He said the Federal program had caused Georgia Power Company bonds "to suffer because of a fear of what the TVA will do to our business."

Arkwright appeared in answer to a rule nisi by the commission ordering the power company to show cause why its commercial rate structure should not be revised downward. He said "the financial position of the Georgia Power Company isn't good." Twenty-nine rate reductions since 1928, together with an aver-

age expenditure of $6,500,000 a year for expansion also had contributed to the "poor" financial situation, he said.

The power company president said there "seems to be a determination by the government to take over and operate the power company business." He added the TVA has set aside funds for construction of transmission lines into several north Georgia towns where present customers and municipalities are served by the Georgia Power Company. He said:

"With that threat, we would be glad to buy TVA power and give our customers the benefit of any lower rates. The TVA, however, is refusing to sell power now and this threat makes it extremely difficult for the company to finance itself."

Iowa

Grants Line Permits

GEORGE Huffman, chairman of the state commerce commission, last month reported that the commission had granted 14 more applications for construction of rural electric transmission lines. The lines which will run through 17 Iowa counties total 381.25 miles.

Largest of the projects approved was the petition of the Shelby County Rural Electric Coöperative which was issued a franchise to construct 260 miles in Shelby and Harrison counties. The project is to be financed by a Federal rural electric administration grant.

Huffman reported that contracts for the Shelby county coöperative lines and for the South Crawford coöperative already have been let. The South Crawford franchise is for a 20-mile extension to the coöperative's present lines in Crawford and Shelby counties.

The list of other franchises approved follows: Des Moines Electric Company, Des Moines, 13.75 miles in Jasper county; Iowa Public Service Company, Sioux City, 9 miles in Black Hawk county; Central States Electric Company, Cedar Rapids, 8.50 miles in two Pocahontas county projects; Nebraska Power Company, Omaha, 10 miles in Pottawattamie and Mills counties; Iowa Southern Utilities Company, Centerville, 7.50 miles in Keokuk and Washington counties, 5.50 miles in Adams and Union counties, 14 miles in Poweshiek county, and 12 miles in Jasper county; Iowa Nebraska Light & Power Company, Lincoln, Neb., 10 miles in Fremont, Shelby and Pottawattamie counties; 9 miles in separate Pottawattamie county project; Fort Dodge, Des Moines & Southern Railroad, 1 mile in Webster county.

Kansas

All Utilities Pay

UNDER provisions of the new state sales tax law, municipally owned public utilities must pay a sales tax on new equipment. An example in the new process of collecting revenue to carry out provisions of the Social Security Act as demanded by the voters in the last election, is Kansas City which must pay $40,000 to the state in the form of sales taxes on betterments for the municipal waterworks system.

There is said to be no specific provision in the law which calls for a tax on betterments for public utility properties. The fact that they may be owned by the community provides no exception in the opinion of the state tax commission.

Kentucky

REA Makes Allotment

THE Federal Rural Electrification Administration last month notified S. Headley Shouse, president of the Fayette Farm Bureau, that a partial allotment of $120,000 had been set aside for the establishment of a farm electrification coöperative in Fayette, Madison, Woodford, and Jessamine counties. The telegram announcing the approval of the project, which will bring electrical power and lighting to several hundred farms in the four central Kentucky counties, was signed by John M. Carmody, REA administrator.

Petitions asking that their farms be included in the coöperative electrification program had been signed by 117 Fayette county farmers.

The $120,000 allotment will be used for the construction of lines and the installation of necessary equipment, such as transformers, for the handling of the electrical current purchased at wholesale from utility companies.

The plan contemplates the repayment to the government of the $120,000. The allotment is in the form of a loan on which the government is to get 2¼ to 3 per cent interest, depending upon the interest terms on which the government itself is able to borrow the funds.

The farmers who purchase electricity through the coöperative will pay rates based on the wholesale price of the power as it is purchased from the "feeder" utility companies, a small maintenance charge, interest on the loan, a small monthly payment to amortize the original loan, liability insurance, and other incidential costs.

Phone Charges Cut

REDUCTIONS of $43,000 in the annual telephone charges at Lexington and Nicholasville with elimination of mileage charges on 1,131 telephones in Fayette county were announced on July 8th by the state public service commission. The reduction will amount to $3 a year on all main station service in Lexington. A new class of service will be offered in Lexington, a 4-party residential service, costing $2.25 a month.

Telephone users in Fayette county, outside Lexington, will save approximately $11,000 a year on the elimination of mileage charges. The base rate area of the Lexington exchange is to be extended so as to include the built up sections adjacent to Lexington. In this territory the users had been paying the city rate plus a mileage charge on the distance to the city limits.

The new rates in Lexington became effective August 1st. The $3 a year saving at Lexington will be applied to the bills sent customers at Nicholasville. The change in rates on base area operation will be put into effect October 1st.

Adopts Accounting Plan

THE state public service commission on July 12th announced it had adopted for major Kentucky electric utilities subject to its jurisdiction a new accounting system embodying, with minor modifications, accounting principles incorporated in the uniform system of accounts recently prescribed by the Federal Power Commission.

The main feature of the new system, the commission said, is the requirement that utilities restate their property investment accounts on the basis of original cost, which is interpreted as cost of utility plant and equipment at time of dedication to public service. The new system becomes effective January 1, 1938.

Orders Gas Rate Cut

GAS rate reductions approximating 9 per cent were put in effect at Frankfort, Versailles, and Midway on July 14th, retroactive to June 1st, under an order entered by the state public service commission.

The reductions, which will save consumers in the three towns approximately $16,000 annually, were agreed to by the Frankfort (Ky.) Natural Gas Company, which serves the communities. A new set of rates, conforming to the ordered reductions, was filed by D. L. Hazelrigg and Louis Cox, attorneys for the company.

To effect the reduction, the commission ordered the Kentucky-Tennessee Light and Power Company to reduce its yearly rental charge to the Frankfort Natural Gas Company for the use of gas mains in Frankfort. The charge had been $6,000 yearly. The commission ordered this cut to $2,000. This saving of $4,000 annually was added to a $12,000 reduction that had been agreed to in gas charges, raising the total saving to $16,000.

When the commission sought to reduce the rental charge on the gas mains, the Kentucky-Tennessee Company contended the commission could not consider the rental rate fixed in a contract between the companies in determining what rental expenditure should be allowed for rate-making purposes.

The commission decided it had jurisdiction. A public service company cannot make a contract that stands in the way of fair and reasonable rates, the commission said. If it does, its contract is subject to review, and the terms of the contract can be disregarded in rate-making questions, the commission decided.

The new rates for the three communities are: Service charge 25 cents a month, reduced from $1. Where no gas is used on a connection in any given month the saving to the customer will be 75 per cent. For the first 1,000 cubic feet of gas the charge will be 60 cents; 55 cents per thousand cubic feet for the next 3,000; 50 cents for each 1,000 cubic feet on the next 3,000, and 45 cents per thousand cubic feet for all over 7,000 cubic feet.

Minnesota

Sign Rural Service Contracts

CONTRACTS for the purchase of electricity wholesale for rural use were signed by the Interstate Power Company of Albert Lea and the Freeborn-Mower Coöperative Light & Power Association last month. The contracts were signed by J. S. McCornack, president, and Frank H. Osborne, secretary of the association and the company.

The contracts provide for purchases of electricity for the western part of the REA project which includes most of the lines to be built in Freeborn county. The association is to purchase electricity from the Austin municipal plant for the eastern part of the project in Mower county.

Electricity will be taken from the 33,000-volt line of the Interstate Power Company at a point near Hayward, Minn. Lines to the farm customers will spread out in the county from that point. The association will build a substation near Hayward to reduce the voltage from 33,000 volts to 7,200 volts. The lower voltage will go to farms on the REA lines, it was said.

Signs Phone Tax Bill

A GRADUATED telephone gross earnings tax of from 4 to 7 per cent became law on July 9th over the signature of Governor Benson. The new statute, in lieu of all other taxes on telephone companies, displaced a former flat 4 per cent rate.

The graduated levy ranges from 4 per cent in smaller communities to 7 per cent in cities with 10,000 or more population.

The legislature also passed an alternative telephone gross earnings tax bill imposing a flat 6 per cent levy. This law is to take effect in the event the graduated gross earnings tax is declared unconstitutional.

Montana

Investigates Power Situation

SENATOR Burton K. Wheeler of Montana on July 10th, said Frank R. McNinch, chairman of the Federal Power Commission, has ordered a commission engineer to begin an immediate investigation of the electrical power situation in the entire state of Montana.

The Senator said McNinch informed him the engineer would proceed to Great Falls, Mont., where Mayor J. J. Wuerthner reported a shutdown of smelter units from lack of power had caused loss of employment to "hundreds of men."

Nebraska

Grant Line Permits

ACTING Chairman Good of the state railway commission announced last month that he and Commissioner Maupin had granted the request of both the Burt and Polk county rural electrification districts for leave to construct transmission lines, the Burt district to build 250 miles of lines and the Polk county district to build 350 miles. The Burt district has a Federal allotment of $275,000 and the Polk district has $367,500.

Good said, following a hearing for the Polk district, that the Iowa-Nebraska Light & Power Company protested and so did the Lincoln Telephone Company, the latter on the ground that 11 miles of parallel telephone lines would be subject to inductive interference and that it would cost $3,000 to extend lines around a section to correct this, and that something ought to be done about it in the order. The commission ruled that this would set a new precedent and that the order would be simply for permission to build the transmission lines. It was understood, he said, that the district has available funds to correct any interference.

New York

Orders More Rate Cuts

THE state public service commission on July 7th called upon seven more communities operating municipally owned electric plants to file reduced rates immediately. These villages are in addition to nearly thirty of which the commission already had requested lowered rate schedules, alleging that they mere making an excessive profit.

Affected by the latest order are Bath, Boonville, Churchville, Mayville, Salamanca, Spencerport, and Wellesville. The commission said no formal rate proceedings would be instituted, "pending a prompt reply from them."

The commission said its findings in connection with financial affairs of the plants in the seven communities, along with those at Brockton and Philadelphia, were based upon sworn statements of officials operating the plants.

The 6.7 per cent rate of return reported by Brockton, the commission said, was not found excessive, adding that the Philadelphia plant, reporting a 12.9 rate of return, had not been advised to reduce rates pending the outcome of a rate proceeding involving that commu-

nity, which is now before the state public service commission.

Percentages of return for the seven plants affected by the order in the last fiscal year, as reported by the commission, showed: Bath, 8; Boonville, 6.2; Churchville, 10.4; Mayville, 6.9; Salamanca, 11.8; Spencerport, 11.8; Wellesville, 8.6.

Blocks New Phone Rates

SUSPENSION of new rate schedules filed recently by the Rochester Telephone Corporation was ordered on July 16th by the state public service commission, which was to conduct a public hearing on July 28th before Commissioner Maurice C. Burritt in Rochester.

The proposed schedules, according to the public service commission, would raise rates by about $125,000 annually, while the reductions offered by the company would result in savings of about $65,000—a net annual increase of about $60,000 a year. Suspension of the new rates is effective for 120 days.

Besides the city of Rochester, communities affected are Atlanta, Avon, Bergen, Brockport, Caledonia, Canandaigua, Castile, Churchville, Cohocton, Dansville, East Rochester, Fairport, Geneseo, Hamlin, Henrietta, Honeoye Falls, Leicester, Le Roy, Lima, Livonia, Mount Morris, Naples, Nunda, Pavilion, Perry, Pittsford, Rush, Scottsville, Springwater, Victor, Warsaw, Wayland, Webster, and Wyoming.

Resigns Transit Post

SAMUEL Seabury, special counsel to the New York city board of estimate in transit matters, including unification of rapid transit lines, resigned on July 16th, after three and one-half years of unsalaried service.

On motion of Mayor La Guardia, the board gave Mr. Seabury a vote of thanks. Mayor La Guardia declared that the public would, at some future time, realize the full value of Mr. Seabury's services. The mayor predicted that unification, when it becomes a reality, would be on the basis of the $436,000,000 plan negotiated by Mr. Seabury and City Chamberlain A. A. Berle, Jr., but rejected last May by the transit commission.

Mr. Seabury's resignation was addressed to the board in a letter dated June 23rd, but not made public until July 16th when it was read to the board by Mayor La Guardia. It was said to contain a caustic criticism of the transit commission.

Because of the transit commission's rejection of the Seabury-Berle plan and the limited powers of the board of estimate to advance unification without the commission's coöperation, Mr. Seabury declared there was nothing further for him to do as counsel for the board. He noted that pending matters in connection with the Interborough Rapid Transit Company receivership have been taken over by Corporation Counsel Paul Windels, whose office will handle them.

Oregon

Project Held Unjustified

CONSTRUCTION of a $250,000,000 power and navigation project, including a series of eight dams and locks on the Columbia and Snake rivers may be justifiable "fifty years from now," but not at present, according to a recent report by Colonel Thomas M. Robins, U. S. army engineer. He recommended that whenever the program is undertaken, it should be considered as a "single project."

Colonel Robins informally estimated that the eight proposed dams without power facilities would cost between $150,000,000 and $160,000,000. He said:

"At present, the saving in transportation would not justify the expense. The hydroelectric power is there, if you can sell it. It is possible that enough surplus power from the dams could be developed and sold within the next fifty years to make the project economically sound."

Verbally supplementing his formal report, Colonel Robins said the future of the project hinges largely on whether or not power will be generated at Grand Coulee dam and command the available market in the region. He said it was possible the project might not have to wait fifty years.

The Columbia River Association and the Inland Empire Waterways Association, which represent towns and residents of the affected area, have aggressively pressed for the development.

Files Utility District Petition

PRELIMINARY draft of the final petition for organizing the so-called Super Northwest Oregon Bonneville People's Utility District was filed with the state hydroelectric commission at Salem on July 14th. The district would comprise seven counties, Clackamas, Clatsop, Columbia, Lincoln, Polk, Yamhill, and Washington.

In case the petition is approved the hydroelectric commission will submit the proposal to a vote of the property owners of the district.

Pennsylvania

Utilities Win Delay

THE authority of the Federal Power Commission to investigate the managerial set-up and inside workings of six Pennsylvania subsidiaries of the $300,000,000 Associated Gas & Electric Company was challenged in the U. S. Circuit Court in Philadelphia on July 7th.

Judge Joseph Buffington issued a rule, the effect of which was to delay the whole inquiry until October 4th when the commission must show its authority in making the probe. The action followed temporary suspension of activities on April 26th when the circuit court had a partial hearing on a plea by the subsidiaries for an injunction to restrain the probe on the grounds the companies are all intrastate and the commission was acting without jurisdiction, but making a "fishing expedition" to aid state utility investigators.

The commission started its inquiry in April after Governor Earle attributed high utility rates in northern Pennsylvania communities to an asserted flow of millions of dollars in service charges from the operating units to the intermediate holding company affiliates.

Sets Precedent under New Law

THE state public utility commission on July 7th issued its first order setting temporary rates for a utility company in connection with a rate complaint. The company chosen for the precedent was the Solar Electric Company of Brookville, Jefferson county, a subsidiary of the Associated Gas & Electric System.

Rate proceedings against the Solar Electric Company had been pending before the former public service commission for eight years. The temporary rates, authorized in the new public utility law, were to be placed in effect as soon as the commission's experts drafted a rate schedule, and would remain in effect until final determination of the case, throughout all appeals.

The commission announced its rate experts would draft a schedule which would reduce gross revenue of the company by 10 per cent. The reduction would constitute a cut of about 40 per cent in the net revenues of the company.

Rhode Island

Heads Power Survey

FREDERICK A. Young, chief of the state division of public utilities since 1935, resigned on July 7th to direct a 15-month survey of electric power companies in Rhode Island at a cost of $225,000 appropriated by the general assembly last December. Michael De Ciantis, former third assistant attorney general, was named to fill the vacancy.

Out of the $225,000 to be paid Mr. Young for the survey appraisal and inventory will come the cost of hiring as many as fifty assistants and setting up headquarters. There is a retainer of $25,000 for Mr. Young, but whether that amount would be his ultimate personal fee was said to depend on whether he keeps the survey within or under the remaining $200,000.

After signing the contract with Governor Quinn, State Director of Revenue and Regulation Thomas A. Kennelly, and Mr. DeCiantis, Mr. Young announced he would set up his staff organization at once and start the survey before the first of August. He expects to finish it in fifteen months, shortly before the November, 1938, general election.

Texas

State Tax Upheld

THE state's construction of a provision of the omnibus tax law assessing a tax against gross receipts of natural gas distributors was upheld recently by District Judge Roy Archer. A judgment for $3,755 taxes against the Utilities Natural Gas Company for the company's sale in Victoria was entered.

Attorney General William McCraw, who brought the suit, said it was a test case and others would be filed immediately against several other utilities which claimed changes made in the gross receipts tax by the omnibus bill exempted them from the tax. The tax is on a sliding scale, depending upon the population of the town served.

The tax is imposed on gas companies handling gas used for "local sale and distribution." Assistant John McKay said the utilities claiming exemption from the tax contended the new definition of "distributor" in the law means a company which both sells gas locally and distributes it locally. The state contended that a company was a distributor if it either sold or distributed gas locally. As such they would be subject to the state tax.

Virginia

Gas Cut Effects Saving

REDUCED gas rates effecting savings of $11,000 to consumers in Arlington county and Falls Church were announced on July 17th by H. Lester Hooker, chairman of the state corporation commission. The reduction of the general rates of the Rosslyn Gas Company was made public coincidental with notice of a yearly saving of more than $250,000 to electric power consumers in other parts of the state.

The new electric rates for residential service, representing approximately $109,000 in reductions per year, and commercial service, about $55,000 annual reductions, became effective August 1st, Chairman Hooker announced. The new rates, he said, will be applicable in the entire territory served by the Public Service Company, excepting Arlington county and Alexandria.

Wisconsin

Seek Rate Boost

APPLICATION of smaller telephone companies for rate increases was cited by the state public service commission recently as evidence of changing economic conditions in Wisconsin.

The commission said that many smaller telephone utilities in an effort to keep customers during the depression in the face of falling farm income adopted its suggestions and reduced rates to a point where many of them failed to earn a fair return. With improved economic conditions, the smaller companies have applied for permission to increase rates, giving wage increases, inadequate earnings by the companies, and the need of deferred repair work as their reasons.

The Cuba Telephone Company has asked to increase its quarterly rate from $3.75 to $5.25 gross, providing the company furnish everything.

Protest Payment of Funds to WDA

THE Wisconsin Development Authority on July 7th, the very day of its formal organization, was faced with legal entanglements. Three Milwaukee taxpayers, invoking their statutory right, lodged formal protest against payment of any state funds to the WDA in letters to Theodore Dammann, secretary of state, and State Treasurer Solomon Levitan, the state's disbursing officers.

Their letter of protest charged that the "little TVA" measure, which created the development authority to carry on a state power program, "never became effective and is in fact unconstitutional."

John A. Becker, state rural electrification director and a WDA incorporator, promptly denounced the protest as "an unsportsmanlike attempt to hamstring the program before it has a chance to get started." He declared:

"The WDA will carry on and coördinate the rural electrification program in the state. The taxpayer association's effort to cripple the program before it has started to walk means that literally thousands of farmers will be thwarted in their immediate need for educational and promotional assistance in developing their projects . . . They fear the new power program because it will fight for lower and lower electric rates."

Dammann prepared to seek an official ruling from Attorney General Loomis on whether he should release any of the funds which the "little TVA" bill proposes to appropriate to the development authority. If Dammann should refuse to audit any of the WDA disbursements, court action to compel state payment would be launched.

The formal protest against release of state funds to the WDA was written by Robert Rieser, Madison utility attorney, in behalf of Richard F. Lehmann, president, and Frank H. Meyers and Frank Zelhoefer, directors of the United Taxpayers Coöperative Association of Wisconsin.

The WDA bill, major measure on the La Follette administration's 1937 legislative program, creates a private corporation, the WDA, to encourage and promote municipal ownership of urban utilities and coöperative development of rural power. The WDA's articles of incorporation, moreover, authorize the corporation to go into the power business itself.

Seeks Ten Year Pacts

REPRESENTATIVES of the Northern States Power Company at a state commission hearing last month requested 10-year contracts with six north central Wisconsin municipal utilities, before complying with a rate reduction to the utilities ordered by the public service commission. Otherwise willing to give the reduction, the utility asked for 10-year contracts so it "will know where it stands" in the future on rates. The municipal utilities told W. A. Anderson, the commission's chief examiner presiding at the hearing, that they did not want to sign contracts for power for more than four years ahead. Argument developed that the power company's construction plans were based on a 5-year program.

The Latest Utility Rulings

Federally Financed Electric Corporation Is Denied Authority in Massachusetts

THE Tri-County Electric Company petitioned the Massachusetts Department of Public Utilities for approval of the par value of $25 per share of the capital stock of the company, for authority to issue capital stock in the amount of $25,000 and to issue a mortgage note to the United States of America in the sum of $255,000, and for authority to begin business. The first petition was granted and the other two petitions denied.

The department held that the proposed capital when, as, and if paid in was decidedly inadequate to operate the electric business in conformity with the standards of effectiveness required by the commonwealth's regulatory laws. The proposed note and mortgage arrangement by which the company assumed burdensome obligations was held to be improvident and unwarranted by any rational calculation based upon prevailing conditions in comparable communities or elsewhere in the commonwealth as to anticipated revenues and costs of operation.

The company proposed to operate in territory presently served by public utility companies. Its plans for development were indefinite but it proposed that mortgage money secured from the Federal government should be disbursed under the control of the REA. The department stated that authorization for such a project should be explicit and determinate, continuing:

> Particularity of description is peculiarly appropriate to orders of the department since property rights may be established and liabilities and responsibilities created by such orders. The petitioner asks approval *carte blanche* over an extensive territorial area of the commonwealth to follow its own wishes and desires as to the location of its business, regardless of the fact that other corporate entities may have established rights created by special charters of legislature and by law that cannot be legally disregarded.

Reference was made to the disproportionate amount of mortgage indebtedness as compared with the small amount of capital stock. It was pointed out that the capital of $25,000 was claimed to be sufficient to maintain and service an electric system extending approximately 232 miles in aggregate length and the system apparently consisted of twelve separated and disconnected distribution lines.

The department said that it could not shut its eyes to the facts and seek to please and be unmindful of its duty to safeguard the public interest in general, although it did not wish it to be construed that the department was unsympathetic and not coöperative with any program to assist rural communities and the farmer by securing for them modern conveniences of electricity. The department pointed out that the present laws provided a remedy if customers desired electric service from existing companies. New customers could be served by the operating companies in the territory upon terms determined by the department to be legal and reasonable. *Re Tri-County Electric Co. (D.P.U. 5352-5354).*

Commission Upheld in Pay Station Case

A state utilities commission order, nullifying a Fort Smith city ordinance prohibiting the Southwestern Bell Telephone Company from installing pay phones other than long-distance phones in the business district, was upheld in

second division circuit court. The city's motions for a new trial were denied; an appeal to the supreme court was granted.

The ordinance was passed last year and the telephone company appealed to the utilities commission. The company contended the city was without authority to pass the ordinance, charging it was unconstitutional and discriminatory. The commission agreed that the ordinance would increase rates to residential consumers because of increased costs caused by free telephone service in down-town stores.

City attorneys contended that the commission was without judicial authority to invalidate an ordinance. The commission declared its action was not judicial but legislative in that it had established a telephone rate.

Commission Decision on Street Car Fares Sustained after Reëxamination

HOLDING that the commission has power to reopen a rate proceeding and receive further evidence after remission of a rate order by the court, the appellate division of the New York Supreme Court sustained a commission order denying authority to increase street railway fares. Such an order, if fair and reasonable within the grant of power constitutionally conferred by the legislature, it was held, is not open to judicial review.

Whether witnesses are qualified to speak as experts on matters involved in a rate case before the commission, it was held, is a fact to be determined by the commission, and ordinarily when the commission's decision is made on this point, if supported by facts, it is not open to review in the courts.

The court sustained findings as to depreciation determined by the straight-line method, where there was testimony in the record to the effect that the straight-line method of depreciation accurately reflected actual depreciation. It was said that the purpose of permitting a depreciation charge is to compensate the utility for property consumed in service, and the duty of the commission, guided by experience in rate making, is to spread this charge fairly over the years of the life of the property.

No error was found in the commission's disallowance of a separate item for going value, denial of an allowance for working cash capital to cover payment of accident claims where the company had sufficient receipts from day to day to cover claims and all expenses for accidents were charged to operating expense, allowance of 3 per cent for interest during construction, and allowance of more than 6 per cent for return.

The court observed that the unfavorable financial condition of a company, although emphasizing the serious effect which would result if it should be deprived of the return to which it is entitled, does not give the company a right to more than a fair return upon the value of the property devoted to public use. *Yonkers Railroad Co. v. Maltbie et al. 296 N.Y. Supp. 411.*

Load Count Rate Eliminated

THE Wisconsin commission in revising electric rates eliminated the load count type of rate and discontinued separate heating and cooking rates for residential customers. The adoption of a standard rate, it was pointed out, would discriminate between customers receiving service at a lower cost than customers in other communities of like characteristics served by the same utility. A second serious discrimination, it was said, frequently results under the load count type of

rate since, as the public service commission explained when it heard the case:

> Unless new load counts are taken at relatively short intervals customers may increase their loads without having the rate adjusted accordingly. Thus, customer A with a correct load count may be billed at a higher rate than customer B who has exactly the same load, part of which has been added since the last survey by the utility.

The commission also called attention to the fact that the load count type of rate tends to retard development of the use of electricity, since any additional load means an increase in the customer's connected load and in the blocks of the rate schedule applicable to his service. *Re Lake Superior District Power Co. (2-U-650, 2-U-810).*

Unauthorized Stock Transactions Held Invalid and Restoration of Status Required

PUBLIC utility corporations involved in financial transactions held by the New York commission to be null and void, because of the absence of commission authorization, were required by that commission to place themselves in the same position in which they were prior to the transactions. The companies involved were a gas utility corporation, two corporations owning its stock, and a merging corporation.

The Owego Gas Corporation had outstanding 3,000 shares of common stock. Without obtaining commission consent, the stock was reclassified so as to leave in the hands of one of the two parent corporations newly issued preferred stock and leaving in the possession of the other company its common stock. Thereafter an attempt was made to redeem the preferred stock through various transactions which resulted in the transfer of miscellaneous obligations as a consideration for the redemption.

The commission held that the attempted reclassification of stock without commission authorization was a nullity; that the position of the stockholders prior to reclassification remained unchanged; that the attempted redemption of shares of so-called preferred stock was null, void, and of no legal effect; that the preferred stockholder had received miscellaneous assets which it should return; that notes and obligations issued and incurred in connection with the transactions were unauthorized and illegal and the avails thereof remaining in the possession of the gas utility should be returned and the notes and obligations canceled. *Re New York State Electric & Gas Corp. (Case No. 8843).*

Security Issues for Needed Improvement When Company's Right to Operate Is Disputed

AUTHORITY was granted by the Missouri commission for the issuance and sale of bonds and preferred stock by a water corporation operating in the city of Springfield although the city contended that the company's franchise had expired and its right to operate in the city no longer existed.

In an earlier proceeding a ratepayer's association had urged that the company was not furnishing a pure and wholesome supply of water and the commission had determined that improvements were necessary. The commission said that in this later proceeding the association could not be heard to urge that the additions and betterments should not be made. The commission said that as a cardinal principle of regulation the commission as a matter of law must so regulate a water corporation over which it has jurisdiction that pure and wholesome water will be furnished to the users of the water.

The question was raised whether the

earnings of the company were adequate to justify approval of securities, since the mortgage indenture provided that average net earnings must equal 1¾ per cent of bond interest requirements. The average net earnings for the past three years had not met this requirement, but the commission considered savings in operating expenses would result from new construction which would have the effect of enabling the company to earn more than 1¾ times its fixed charges.

Concerning the pendency of a *quo warranto* proceeding to oust the company, the commission said that in the meantime the public must depend upon the company for its water supply, and if an epidemic (referred to in the earlier proceeding) was caused by the water supplied, it was positive proof that the company should not be hampered in making the necessary improvement. The commission continued with the following statement:

> If the plea in abatement were sustained it would necessarily mean that the interest of the public is not the preëminent fact and the controlling factor the commission would be guided by, because for the commission to even hold the present proceeding in abeyance, as requested in the plea of abatement, would necessarily mean that it contemplates a holding in favor of the movant in the *quo warranto* proceeding, or, in substance, the commission would be passing upon or determining the issues in that proceeding which, as a matter of law, it does not have the power to do nor is it vested with, as the commission is not a court and does not possess the prerogatives of a judicial tribunal. Under no circumstances should the commission ever lend its countenance to the approval of a water plant or system being operated by a public utility which will not promote the public interest and preserve the public health, and for it to do so it is conclusive that the acts of the regulatory body would be such that the intent of the general regulatory act would not be properly performed by it.

Re Springfield City Water Co. (Case No. 9341).

Oregon Commissioner Rules on Contributions to Organizations and Other Expenditures

THE Oregon Public Utilities Commissioner, in investigating a proposed budget of expenditures of the Portland General Electric Company, ruled on the propriety of various charges, including contributions to organizations beneficial either to the company and its stockholders or to those parties and also to ratepayers.

The commissioner disallowed as operating expenses contributions to the Industrial Relations Association composed of employers of labor, having for its purpose assistance in the prevention of and settlement of labor disputes; a contribution to the National Association of Manufacturers largely for the compilation and dissemination of information favorable to industry; and contributions to the National Industrial Conference Board and to the United States Chamber of Commerce primarily for the benefit of the company's stockholders rather than ratepayers, since these organizations did not contribute towards the sale of the company's products, the efficiency of its service, or economies in its operation.

The commissioner allowed as a proper and legitimate expenditure a contribution to the Electrical Testing Laboratories for the purpose of testing lamps and domestic appliances, but it was held that the major portion of this expenditure should be classified as merchandising and jobbing expense and the balance as new business expense rather than general operating expense.

A contribution to the Salem Trade and Labor Council towards the equipping and maintenance of a first aid car to be used in emergency cases was approved as an operating expense upon its being shown that the car would be of great benefit to the company's employees engaged in hazardous work.

A contribution to Oregon Business and Investors was disallowed as an operating expense on the ground that the activities of this organization were largely educational and political, on behalf of the man-

agement and stockholders of certain large corporations and not for the benefit of ratepayers. One of the stated purposes of the organization was that of furthering tax reduction and the elimination of waste in governmental expenditures. During the last political campaign this organization had been active in behalf of a number of the larger electric utilities with respect to the so-called "State Power Bill" and the "Grange Constitutional Amendment." *Re Portland General Electric Co. (5506-E-31, P.U.C. Or. Order No. 4088).*

Cost Allocation on Switched Telephone Line

THE Wisconsin commission authorized a telephone company to increase rates to subscribers who were connected with an exchange of another company and were switched by that company, subject to the condition, however, that the company improve its lines and service. Apportionments of plant investment and of expenses were made for the purpose of fixing rates, but the commission made this statement concerning the cost allocation:

> In making this revised allocation, the commission wishes it clearly understood that it does not thereby subscribe to the theory that one class of subscribers, especially rural, should have their rates determined solely on a basis of a full allocation of costs. Telephone service consists of communication between persons. Both the urban resident and the farmer derive value from being able to communicate freely with each other. When consideration is given to value of service and the desirability of broadening communication possibilities between country and town, rates based upon a full allocation of costs may be higher than economically or socially justified. Nevertheless, costs of service deserve some consideration. Depending on the circumstances in each case, we cannot fix rates that are too far removed from costs of service, without placing a burden on other classes of subscribers who do not derive commensurable benefits from communication with the favored class of subscribers.

Re Commonwealth Teleph. Co. (2-U-1079).

Other Important Rulings

THE Oregon commissioner approved a contribution to the national tournament of the U. S. Golf Association which was to be held in Portland, it appearing that such expenditure was for the purpose of attracting attention and visitors to the territory served by electric utility companies, thereby being of benefit to the company and its customers. *Re Northwestern Electric Co. (5600-J-33, P.U.C. Oregon Order No. 4576).*

The California commission, in denying authority for motor coach service, said that any urban territory which cannot justify a local service frequency of one hour cannot justify any service at all; that for all practical purposes a local service with 2-hour frequency is equivalent to no service, would be of little use to residents along the route, and would add to the expense of the operator. *Re Original Stage Lines, Inc., et al. (Decision No. 29633, Application Nos. 20567, 20590, 20827, 20857).*

The California commission, in authorizing the merger of two corporations, held that where the transfer of certificates of one public utility to another is authorized it is not necessary to grant a new certificate of public convenience and necessity. *Re Los Angeles Gas & Electric Corporation et al. (Decision No. 29667, Application No. 21079).*

NOTE.— The cases above referred to, where decided by courts or regulatory commissions, will be published in full or abstracted in *Public Utilities Reports.*

PREPRINTED FROM

Public Utilities Reports

COMPRISING THE DECISIONS, ORDERS, AND RECOMMENDATIONS OF COURTS AND COMMISSIONS

VOLUME 19 P.U.R.(N.S.) NUMBER 1

Points of Special Interest

SUBJECT	PAGE
Review of ordinance gas rate	1
Overheads of natural gas utility	1
Limited life of enterprise	1
Wholesale rate to rural coöperatives	22
Competition and social advantages as affecting rates	22
Discriminatory classification for rate making	22
Natural gas producing company as public utility	35
Voluntary contracts as affecting rates	35
Exclusive Commission jurisdiction over restriction of toll calls	49
Constitutional right to telephone service	49
Municipal competition with private plant	55
Jurisdiction to determine policy as to competition	55

¶ *These reports are published annually in five bound volumes, with an Annual Digest. The volumes are $6.00 each; the Annual Digest $5.00. A year's subscription to* PUBLIC UTILITIES FORTNIGHTLY, *when taken in combination with a subscription to the Reports, is $10.00.*

Titles and Index

TITLES

Humble Oil & Refining Co., Railroad Commission v. ..... (Tex. Civ. App.) 35

Metropolitan Edison Co. v. Public Service Commission ..... (Pa. Super. Ct.) 55

Southern Bell Teleph. & Teleg. Co., Smith v. ..... (Ky. Ct. App.) 49

Springfield Gas Co., Re ..... (Ohio) 1

Wholesale Rates for Electric Power to Rural Coöperative Associations, Re .... (Ky.) 22

INDEX

Appeal and review, burden of proof, 35; Commission decision as to policy on monopoly, 55; reversal because of methods and reasoning, 35; scope of review, 55.

Apportionment of natural gas costs, 35.

Commissions, creation and delegation of powers, 49.

Constitutional law, exclusive jurisdiction of Commission, 49; right to hearing before Commission, 49.

Coöperative associations, electric rates to, 22.

Courts, jurisdiction in view of Commission authority, 49.

Depreciation, experience basis, 1; natural gas utility, 1; property with limited life, 1.

Discrimination, attraction of business as factor, 22; competition as factor, 22; different rates and classes, 22; power of Commission to classify for rate making, 22; wholesale service to coöperatives, 22.

Evidence, weight of expert testimony, 35.

Expenses, donations, 1; dues, 1; Federal income tax, 1; injuries and damages reserve, 1; management fee, 1; rate case expense, 1.

Monopoly and competition, burden of proof, 55; jurisdiction to determine policy, 55; municipal and private plants, 55; service adequacy as factor, 55.

Payment, exclusiveness of Commission jurisdiction, 49.

Public utilities, wholesale natural gas company's status, 35.

Rates, ability to pay as factor, 22; average cost for classes of service, 22; natural gas producer and royalty owners as parties, 35; social advantage as factor, 22; voluntary contract as factor, 35; wholesale electric to coöperatives, 22; wholesale natural gas, 35.

Return, gas and oil company, 35; natural gas producer, 35; natural gas distributor, 1.

Service, constitutional right to telephone, 49; exclusiveness of Commission jurisdiction, 49; restriction of telephone toll calls, 49.

Valuation, financing costs, 1; going value, 1; materials and supplies, 1; overheads, 1; working capital, 1.

PUBLIC UTILITIES REPORTS

OHIO PUBLIC UTILITIES COMMISSION

Re The Springfield Gas Company

[No. 9075.]

Valuation, § 331 — Going concern value — Necessity of proof.

1. Going concern value is not something to be read into every balance sheet as a perfunctory addition, but before it may have a place in the rate base there must be proof of its existence, p. 6.

Valuation, § 114 — Cost of financing.

2. No allowance was made for cost of financing in fixing the rate base where such allowance was requested in the amount that would be paid to investment bankers in order to enable them to obtain their overhead costs, inclusive of what is known as broker's or banker's spread or profit in disposing of and handling security issues, so that the money could be made available to the utility company issuing the securities to finance construction, p. 6.

Valuation, § 332 — Going value — Separate allowance.

3. No separate allowance was made for going concern value where ample allowance had been made for direct and undistributed overhead construction costs and no other specific costs had been established, p. 6.

Valuation, § 144 — Overheads — Preliminary organization.

4. An allowance of one-half of one per cent was approved for preliminary organization in determining the rate base of a natural gas utility, p. 9.

Valuation, § 135 — Overheads — Engineering and superintendence.

5. An allowance of 5 per cent for engineering and superintendence was approved in determining the rate base of a natural gas utility, p. 9.

Valuation, § 129 — Overheads — Administrative and legal expense.

6. An allowance of 3 per cent for administrative and legal expense was approved in determining the rate base of a natural gas utility, p. 9.

Valuation, § 150 — Overheads — Taxes during construction.

7. An allowance of one per cent for taxes during construction of a natural gas utility was approved in determining the rate base, p. 9.

Valuation, § 140 — Overheads — Interest during construction.

8. An allowance of 3 per cent for interest during construction was approved in determining the rate base of a natural gas utility, the estimated period for construction being one year, p. 9.

Valuation, § 313 — Working capital — Natural gas utility.

9. An allowance for working capital representing approximately two months' operating expenses of a natural gas utility, exclusive of purchased gas, was included in the rate base, p. 9.

Valuation, § 300 — Materials and supplies — Natural gas utility — Average balance.

10. An allowance for materials and supplies representing the average balance of materials and supplies carried by a natural gas company was included in the rate base, p. 9.

Depreciation, § 25 — Amortization fund — Limited life of property — Natural gas utility.

11. No allowance was made for amortization of the property of a natural gas distributing company, as distinguished from depreciation and depletion allowances for units of property incidentally consumed in the operation of the business, on the theory that the business must end without consumption of part or all the property in the operation of the business by reason of the exhaustion of gas fields of producing companies, where it was testified that the gas fields had a life of about twenty-five years, but in other proceedings it had been testified that the producing companies had an assured natural gas supply extending into the indefinite future, p. 10.

Depreciation, § 29 — Calculation of annual allowance — Experience.

12. The Commission, in ascertaining what is a proper allowance for depreciation, is guided in the main by the past experience and practices of the company, p. 13.

Depreciation, § 66 — Natural gas utility.

13. A composite depreciation rate of .7 per cent upon the depreciable property of a natural gas distributing company was held to be fair, reasonable, and sufficient, where the policy of the company was to charge most of the retirements and replacements to maintenance expense and to limit the major retirements and replacements to charges to the reserve, p. 13.

Expenses, § 84 — Payment to affiliated company — Management fee — Proof.

14. A company urging an operating expense in the nature of a management fee based upon per cent of gross earnings and investment rather than upon a charge for specific services rendered to the operating company by an affiliated company must show that services were actually rendered for the company, the nature of the same, and that the amount paid is fair and does not exceed the actual cost of rendering the services, p. 14.

Expenses, § 21 — Injuries and damages — Reserves.

15. The propriety, as a charge to operating expenses, of amounts set aside to a reserve which had been established by a natural gas company out of which it might pay claims for injuries and damages was held to be unproven, and the propriety of payments in the way of damages as charges to be paid by the ratepayer rather than the corporation itself through its stockholders was held not to have been shown, p. 16.

Expenses, § 46 — Donations — Subscriptions.

16. Donations to charitable and religious institutions and to organizations and civic clubs are to come out of surplus and are not chargeable to ratepayers through the medium of operating expenses, p. 17.

Expenses, § 48 — Dues and membership.

17. Dues and membership fees to clubs and civic organizations are to come out of surplus and are not chargeable to ratepayers through the medium of operating expenses, p. 17.

Expenses, § 89 — Rate case expense — Test of ordinance rate.

18. No rate case expense should enter into the Commission's computation in order to test the reasonableness of an ordinance rate, but if the Commission should later determine the ordinance rate to be unjust or unreasonable, the item of rate case expense will receive further consideration, p. 17.

Expenses, § 114 — Federal income tax.

19. A public utility company is not entitled to an allowance for Federal income tax by resorting to an estimate to be charged to the ratepayer when the company has paid no Federal income tax in recent years, p. 18.

Return, § 102 — Reasonableness — Natural gas utility.

20. A return allowance of 6 per cent on the present fair value of property of a natural gas distributing company was held to be reasonable, p. 18.

Return, § 21 — Reasonableness — Distinguished from confiscation.

Discussion in dissenting opinion concerning the distinction between a fair return and confiscation, p. 19.

(WILLIAMS, Commissioner, dissents.)

[June 9, 1937.]

APPEAL *by natural gas distributing company from a rate ordinance; findings made as to value of property used and useful and as to costs of distribution of gas, and jurisdiction retained to determine cost of gas purchased.*

By the COMMISSIONER: This is an appeal by The Springfield Gas Company (now by merger The Ohio Fuel Gas Company) in accordance with the provisions of the General Code, § 614-44 et seq. from an ordinance of the city of Springfield, No. 3543, passed by the city commission of the city July 30, 1934, which ordinance, among other things, sought to establish the rate at which the complainant should furnish natural gas to the city of Springfield and its citizens for lighting and fuel purposes, said ordinance being effective September 1, 1934. The ordinance is for a period of two and one-half years and expired March 1, 1937. The ordinance was not accepted by The Springfield Gas Company.

The ordinance provides that complainant shall furnish natural gas to the city of Springfield and its citizens for lighting and fuel purposes at the rate of 48 cents per thousand cubic feet. It further provides that the complainant be required to furnish gas to light the gas street lights located upon the streets and alleys of the city, as may be desired and designated by the city, at a sum not to exceed $3.50 per light per year.

The complaint and appeal therein was filed August 23, 1934, and by the terms of the complaint the complainant elected to charge the rate in

force and effect immediately prior to the taking effect of the rate proposed in the ordinance complained of. The complainant also gave an undertaking in the amount prescribed by the Commission in accordance with the provisions of § 614–44 of the General Code.

On January 11, 1932, the city commission of the city of Springfield passed an ordinance No. 3281, effective February 15, 1932, for a period of two and one-half years, which expired August 15, 1934, establishing a rate of 48 cents per thousand cubic feet to be charged by the company to the consumers of natural gas, private and public, in the city of Springfield. An appeal was also taken by the complainant herein to this ordinance on the second day of February, 1932, and has been pending upon the docket of this Commission as Cause No. 7666. By the terms of the complaint in that case the complainant elected to charge the rate in force and effect immediately prior to the taking effect of the rate proposed in the ordinance complained of, and filed undertakings in amounts fixed by the Commission as provided by law.

The complainant complains and contends that the rates fixed in said City Ordinance No. 3543 are and will continue to be unjust, unreasonable, and insufficient to yield reasonable compensation for the service of supplying natural gas to the city of Springfield and to its citizens. Pursuant to its election so to do, complainant has been collecting the rates effective prior to Ordinance No. 3281 of 60 cents per thousand cubic feet.

The Springfield Gas Company was incorporated under the laws of the state of Ohio in 1849 under the corporate name of The Springfield Gas Light & Coke Company and operated under that name until 1896 when its corporate name was changed to The Springfield Gas Company, and has served the city of Springfield and its inhabitants in the furnishing of gas, in its earlier history manufactured gas and more recently natural gas, for a period of more than eighty-five years, its operations as a natural gas company being under a franchise granted it by the city on October 5, 1914.

At the time the franchise last mentioned was granted, an ordinance was passed for the purpose of prescribing rates to be charged for natural gas from October, 1914, to October, 1921, providing for rates varying from 30 cents per thousand cubic feet to 35 cents per thousand cubic feet. On October 24, 1921, an ordinance was passed prescribing rates for a period of three years at 50 cents per thousand cubic feet and on October 24, 1924, the rate was increased by ordinance to 60 cents per thousand cubic feet and this rate remained in effect until February 15, 1932. Subsequent rate ordinances were passed January 11, 1932, and July 30, 1934, as heretofore stated.

The stock of The Springfield Gas Company was held by individuals prior to 1914 when a controlling interest was acquired by The Ohio Cities Gas Company. In 1924, the capital stock of The Springfield Gas Company was acquired by the Columbia Corporation, which, in turn, sold it to The Ohio Fuel Supply Company, which was not at that time affiliated with the Columbia system. Later in

1924, The Ohio Fuel Corporation was organized and acquired the capital stock of The Ohio Fuel Supply Company, thus acquiring control of The Springfield Gas Company. In 1926 The Ohio Fuel Corporation and The Columbia Gas and Electric Company (West Virginia) were merged into a new Delaware corporation, Columbia Gas and Electric Corporation. At this point Columbia Gas and Electric Corporation, having come into possession of the assets of The Ohio Fuel Supply Company, was the direct owner of the stock of The Springfield Gas Company.

On April 1, 1935, The Ohio Fuel Gas Company, The Springfield Gas Company, and three other natural gas companies consolidated pursuant to § 8623–67 of the General Code of Ohio, by merger into and with The Ohio Fuel Gas Company, whereupon the corporate existence of The Springfield Gas Company terminated and its physical property passed directly to the ownership of The Ohio Fuel Gas Company. The Ohio Fuel Gas Company is wholly owned by Columbia Gas and Electric Corporation, and at the time of and for some time prior to the merger above mentioned the companies thereby consolidating were subsidiaries of Columbia Gas and Electric Corporation, which latter corporation owned and held all the shares of the capital stock of said various corporations. At the time proceedings incident to said merger were had before this Commission it was especially provided that any and all proceedings, findings, orders, or approvals incident to said merger shall in no respect, manner, or form disturb or affect any pending or existing rate controversy or litigation in which is involved any of the aforementioned constituent corporations, and on the 6th day of July, 1936, the name of The Ohio Fuel Gas Company was substituted in this proceeding for the name of The Springfield Gas Company.

The function of The Springfield Gas Company (before merger) was that of distribution and sale of gas; it was not itself a producing company. It secured its gas from the main lines of The Ohio Fuel Gas Company at the Springfield west end and Selma City gate stations. Since July 1, 1929, until the merger of April 1, 1935, The Springfield Gas Company purchased the natural gas it distributed and sold to its customers from The Ohio Fuel Gas Company under contract at the rate of 45 cents per thousand cubic feet at the city gate at Selma. Since said merger there has been no gate or wholesale rate for the city of Springfield as the gas from that time on was distributed and sold directly by The Ohio Fuel Gas Company. When the hearing of this proceeding was assigned it was understood by the Commission and parties concerned that the evidence and proof at the hearings in the first instance would be confined to matters relating to the valuation of the local distribution plant and the cost of distributing gas within the limits of Springfield. This finding and the order made pursuant thereto will accordingly be limited to those two matters. The property and operations of The Springfield Gas Company (before the merger) extend to a minor extent outside of the city limits of Springfield: slightly over 98.5 per

cent of the customers are within the city limits of Springfield and approximately the same percentage of the company's revenue is derived from sales within the city. In fixing the value of the local distribution plant and ascertaining the cost of distributing gas within the limits of the city the fact that the property and operations of the company extend outside the limits was kept in mind and proper apportionment made accordingly.

Valuation of Distribution Plant

The company presented a detailed inventory and its valuation of its property used and useful in the distribution of gas within the limits of said city in the form of an exhibit identified as Company Exhibit No. 1, testified to by Mr. Roy E. Welker. Mr. Welker testified that he is an employee of the company serving as chief engineer of its gas engineering department, that he assisted in the making of the inventory and in determining the valuations of the property as set forth in said exhibit and that he was aided in his work in that capacity by the following company engineers—C. T. Koneony, P. J. Crossin, L. E. Ingham, C. D. Alstadt, J. E. Overbeck, R. E. Woodruff, and Brown Burleigh. Attached to said exhibit and as a part thereof is what purports to be the written testimony of all of said assisting engineers excepting R. E. Woodruff and Brown Burleigh, but none of the assisting engineers appeared in person to testify to any of the matters set forth in said exhibit. The inventory and valuation of the property so submitted was as of September 1, 1934.

[1–3] In submitting valuation figures of its distribution property in the city of Springfield, the company includes the items of $95,000 for cost of financing and $190,000 as going concern value. In support of these items the company witness, Mr. Welker, says:

"I have also included, as shown on page 50 of the summary of total reproduction cost new, amounts of $95,000 for cost of financing, $190,000 for going concern value. . . .

"For further explanation, the amount of $95,000 which I have included and shown as cost of financing is approximately 5 per cent, which is the cost to the company of securing capital. This is not bond discount as such, but is the cost that would be paid to investment bankers in order to enable them to obtain their overhead cost, inclusive of what is known as their broker's or banker's spread or profit in disposing of and handling security issues, so that the money can be made available to the utility company which issues the securities to finance the construction.

"For going concern value of the gas distribution plant of The Springfield Gas Company in the city of Springfield for the date certain I have included $190,000, which represents the difference in value of this property successfully operating as a utility with its business attached, revenues established, and its organization functioning efficiently, as compared with exactly the same property with no attached business and no revenue.

"The gas property of The Springfield Gas Company for service in the city of Springfield has a real and def-

inite going concern value, consisting of the following:

"(a) It is a gas utility company successfully operating and serving the consumers in the city of Springfield.

"(b) It is a gas utility property with an extensive and specialized organization, and it or its predecessors have successfully operated in furnishing gas service to the city of Springfield for a period of approximately eighty-six years.

"The value is particularly inherent by the advantageous connection of gas production sources, inclusive of its modern transmission pipe line system, furnishing efficient gas service from the city gate delivery points of The Ohio Fuel Gas Company, known as the Selma Measuring Station and West End Measuring Station, which furnish an adequate supply of gas at all times.

"(c) The going concern value is evident by the efficient operating and conditioned status of this property, possessing an exceptional trained personnel or organization, and the resultant value or benefits of service accruing to the customers' advantage.

"(d) The company has attached to its distribution system in the city of Springfield a total of 16,419 customers, which to some extent are the results of the company's having converted the former manufactured gas system, supplying its respective customers at a considerably higher price per thousand cubic feet of an inferior gas for service, to the benefits of the present Springfield natural gas distribution system.

"(e) A great portion of the present distribution system consists of 165 miles of distribution mains and 18,249 pipe-line services constructed under pavements and sidewalks in the streets and alleys of the city of Springfield, permits or franchises for the installation of which would be extremely difficult to obtain as of the date certain.

"(f) The gas property for service within the city of Springfield possesses not only a dead framework or 'bare bones' of the physical property, but in addition a large business of established value, for which any purchaser of utility property would expect to pay a value in addition to that of the physical property alone, a value as to which in fact I am personally informed was considered in a recent purchase of the stock of this company in acquiring the physical property and established business of The Springfield Gas Company on or about the date 1924.

"I have estimated the going concern value of The Springfield Gas Company for service in the city of Springfield to be $190,000 which is approximately 10 per cent of the reproduction cost new of the physical property or 12 per cent of the reproduction cost new value less depreciation.

"The amount in dollars, and as expressed in the respective percentages, is approximately as low as that commonly used and is very much less than higher percentages that have often been used, not only in the purchase and sale of the properties but in court and Commission decisions, and is the amount in dollars that I would recommend in a valuation report to an employer or client for either the purchase or sale of the gas property of The Springfield Gas Company for service within the city of Springfield

as it existed and operated for service within the city of Springfield as of September 1, 1934.

"I have in addition, as an explanation, not considered former historical or operating experience of the company, particularly with reference to sustained deficits or losses in its early operation, as being of any importance wtih reference to its present going concern value, since I do not believe that prior operating history as to whether this company lost money in securing the attached business is a factor in determining the going concern value as of the date certain, inasmuch as one hypothetical company may spend considerable money in attaching business, or have a lag in earnings, while another company may not have experienced the same developmental cost, but may on the other hand have an established business and attached customers and possess the other elements of going concern value that I have explained. There is only one consideration, and that is the added value I consider to be inherent in The Springfield Gas Company's distribution property for service in the city of Springfield, regardless of that company's historical experience or developmental cost."

As has been heretofore judicially stated, going concern value is not something to be read into every balance sheet as a perfunctory addition and before it may have a place in the base upon which rates are to be computed, there must be proof of its existence. Is the proof as submitted by the company sufficient to warrant the allowances asked for? We think not.

In the case of Los Angeles Gas & E. Corp. v. California R. Commission, 289 U. S. 287, 77 L. ed. 1180, 1181 (syl. 18, 21), P.U.R.1933C, 229, 53 S. Ct. 637, the Supreme Court of the United States said:

"The right of a public utility to have the going value of its enterprise taken into account in ascertaining the return to which it is entitled as a constitutional right does not give license to mere speculation, but calls for consideration of the history and circumstances of the particular enterprise. . . . going value in fixing a rate base for a gas company, . . . is not proved with requisite persuasiveness by estimating it as the equivalent of one year's gross revenue on the assumption that a purchaser will ordinarily and reasonably pay for a property with established earnings and on a stabilized operating basis approximately one year's gross revenue over and above the value of its physical property or by estimating it as 15 per cent above reproduction cost on the assumption that a purchaser would be willing to buy on that basis, or by estimating it as the product of multiplying the number of meters in use by a stated sum, or by estimating the cost of securing the present business of the company by a company extending its mains during an assumed period of construction plus an estimated cost of organizing property and personnel."

On the subject of cost of financing, the Supreme Court of the United States in the case of Dayton Power & Light Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 290, 78 L. ed. 1267, 3 P.U.R.(N.S.) 279, 293, 54 S. Ct. 647, said:

"The appellant complains also of the failure to include the hypothetical

expense of financing the business as part of the cost of reproduction.

"Considering the absence of evidence that any such expense had been incurred when the business was established and the uncertainty that it would be incurred if the plant were destroyed and reproduced, we think this item under recent decisions was properly rejected as remote and conjectural."

In light of these decisions as well as the numerous decisions of our own supreme court on the subject, we have concluded that the testimony offered does not justify the allowance of $95,000 for cost of financing and a separate allowance of $190,000 for going concern value. We consider that we have made (post) what we regard as ample allowance for direct and undistributed overhead construction cost and that no specific costs have been established that are not covered by such allowance as not to warrant any further separate allowance for going concern value.

[4–10] The city called as its witness Mr. Paul E. Weiland, a member of the engineering staff of this Commission, who testified that in pursuance of a resolution of the city commission of Springfield adopted in April, 1935, he, in connection with other engineers of this Commission, made a valuation of the physical property of The Springfield Gas Company within the limits of said city. The witness testified that all the physical property of the company above ground was listed and inventoried and the pipe lines were taken from the company map and verified as to size of pipe and length by check measurements in Springfield; the condition of the property was ascertained by inspection, as to the pipe lines and services there were a number of openings made (52 in number), and at these points an engineer for the Commission, one for the company, and either the city engineer or an engineer designated by him for the city of Springfield made inspections to determine the amount of accrued depreciation; the inventory was then priced by the unit cost department of the Commission and to the amounts arrived at there were then added the general overheads in the amount of 12½ per cent, and in addition thereto an allowance was added for materials and supplies and working capital. The undistributed construction expenditures usually denominated general overhead expense and totaling 12½ per cent were determined by the following allowances;—preliminary organization one-half of one per cent, engineering and superintendence 5 per cent, administrative and legal expenses 3 per cent, taxes during construction 1 per cent and interest during construction 3 per cent, estimating the period for construction at one year.

An allowance of $12,275 for working capital was made and $7,300 for materials and supplies. The $12,275 represents approximately two months' operating expenses exclusive of purchased gas and the $7,300 for materials and supplies represents the average balance of materials and supplies carried by the company. These allowances we consider fair, reasonable, and sufficient. The inventory and appraisal of this property as

made by the engineers of this Commission is of December 31, 1934, resulting in a valuation as of that date of $1,463,002.89. A separation of the valuation into accounts showing reproduction cost new, depreciation, and present value is set forth in City Exhibit B. While the inventory and valuation of the property as made by the engineers of this Commission is that of December 31, 1934, and that of the company is of December 1, 1934, Mr. Weiland testified that there was no material change in the property of the company or its valuation between the dates mentioned.

Upon consideration of all the evidence pertaining to the value of this property and being most familiar with the methods and experience of our engineers in valuing properties of this character, we have concluded to adopt the valuations as found by them and find that the value of the property of The Springfield Gas Company in the service for Springfield, Ohio, as a plant in actual and successful operation used and useful in the service of the public, upon a reproduction new less depreciation basis, as of December 31, 1934, was $1,463,002.89 and the same is adopted as the rate base applicable to said city of Springfield. A detailed tabulation of figures making up said valuation appears in Appendix A hereto attached and made a part of this finding. [Appendices omitted.] The manufactured gas property consisting of gas storage holder and appurtenant equipment inventoried by the company has not been considered by us as a part of the plant, used and useful, and not included by us in the valuation making up the rate base.

Amortization and Depreciation

[11] The company in its cost-of-service statement claims an annual depreciation allowance of 4 per cent on all depreciable property. The written testimony of company witness, Mr. L. A. Seyfert, in Company Exhibit No. 2 in support of this claim is as follows:

"A composite of 4 per cent on all depreciable property is used to set up a reserve for retirements and replacements of all manner of property used in the business. The records of the company show that there has been charged off between 1906 and the present time $367,186.74 of property which has been replaced, and in addition the valuation shows that the property has sustained depreciation amounting to $342,219. Provision must be made for such items as well as to anticipate that ultimately the entire property will have to be replaced or the value of it returned to the stockholder when its remaining period of use is ended. The known reserves of gas of the companies which supply The Springfield Gas Company would not provide for an amount of gas equal to the present output of these supplying companies, which includes the requirements of The Springfield Gas Company, for a period longer than twenty-five years. It does not appear, therefore, that gas could be supplied to Springfield and the other cities in Ohio at their present rate of consumption for a period longer than twenty-five years. However, it is not likely that the present output of the supplying companies could be continued at the same rate of supply until the complete exhaustion of their properties, but they would

continue the supply of a progressively smaller quantity. Therefore, it would appear that the Springfield plant might be usable for natural gas for a period on a curtailed basis somewhat longer than twenty-five years. However, on a reduced consumption basis there might not be sufficient revenue at that time to provide for any depreciation allowance, and therefore such allowances should be provided for and collected during the period when the full use of the plant could be made. I feel, therefore, that for all these purposes an allowance should be made equal to 4 per cent which should be reflected in the rate per thousand cubic feet allowed by the Commission. In my judgment, there is no basis on which to predict to what use this plant of The Springfield Gas Company could be put at the end of thirty, forty, or fifty years, and therefore to protect any investment in a property of this sort it must pay out in a reasonable period of time."

This witness also testified orally as follows:

"From my knowledge of The Ohio Fuel Gas Company and the other companies which supply The Springfield Gas Company and more or less of the obligations of each of them and the amount of known reserves that our geologists have calculated, I know there is not longer than a 25-year supply in any or all of those for the city of Springfield at the present rates of consumption.

"Any gas man also knows that that rate of consumption cannot always be maintained because as we cease to find new fields the company comes to the point where it will have to liquidate its fields and therefore draw out all it can get out, but that will be at a diminishing rate. Therefore, it may not entirely be gone in twenty-five years, but there is only the equivalent there now of twenty-five years or less at the present rate of use, so that the city of Springfield's property may be useful for natural gas service in some degree for a longer period of time, but it is quite improbable that at that time there will be sufficient earnings to enable the company to set aside anything for replacement of the property. Also in the 4 per cent is included that amount of replacement that occurs throughout that period of time. I am unable to say just exactly what proportion of the 4 per cent that might be.

"If it is 1½ per cent, that would leave 2½ per cent for the other element, or approximately forty years on the straight-line basis. If the use of the account currently or through that period was 2 per cent, then obviously there would be only 2 per cent of the item which would take fifty years in which to accumulate the amount of money necessary to replace the whole plant, or if it happens to be only one per cent is needed then there would be 3 per cent of the item available for the other purpose, which would be somewhere around thirty-three years' life, so I think that is as long in the future as anyone would care to look for putting aside a sufficient amount of reserve for the replacement of that property with something else."

Question by Chairman Hopple:

"Do I understand if there is a 4 per cent annual allowance for depreciation, that a part of the allowance

is desired for the purpose of an amortization fund?"

Answer by the Witness:

"It is similar to that, yes. In other words, if we cannot tell exactly the amount or portion of the 4 per cent that will be used currently in twenty-five years, let us say for argument that is 1½ per cent; then of that amount 2½ per cent is set aside for the purpose of replacing that plant with something. It may not have to go out of business entirely but it may have to be changed entirely from a natural gas plant to something else. I can hardly speculate as to what that might be in so long a time."

Mr. Seyfert is a director of The Ohio Fuel Gas Company and is also employed by The Columbia Gas and Electric Corporation. He stated that he has been connected with the oil and gas business since 1902 and was employed in various capacities by numerous gas and oil companies in the Columbia system since 1906.

In considering this testimony we cannot avoid recalling to mind the testimony of witnesses of vast knowledge and experience in the natural gas industry who appeared before this Commission in recent years in the various rate proceedings involving natural gas companies, including proceedings concerning The Ohio Fuel Gas Company and The United Fuel Gas Company, to the effect that no definite limit on life expectancy of the natural gas business which can be made available to the citizens of Ohio can be intelligently estimated or predicted and that the available gas reserves in the state of Ohio and in the fields of West Virginia and elsewhere controlled by The Ohio Fuel Gas Company and its affiliates assures a natural gas supply extending into the indefinite future.

This company was originally in the artificial gas business and there is nothing to indicate that it cannot return to that business in the future should the supply of natural gas become exhausted. The supreme court in the case of Columbus Gas & Fuel Co. v. Public Utilities Commission, 127 Ohio St. 109, 127, P.U.R.1933D, 238, 249, 187 N. E. 7, having under consideration The Ohio Fuel Gas Company and The United Fuel Gas Company, speaking on the subject of the life of the business said:

"The contention that there should be an allowance by way of amortization sufficient to return the entire investment of the company to the stockholders during the period of the life of the business is untenable, as a business has no fixed life.

"As bearing on the question of the certainty of the life of the business, the gas company places much stress on the testimony of practical gas men, to the effect that they could not predict a longer life than twenty-five years for the company. Practical experience teaches us that this is a mere prophecy. The gas business will continue so long as natural gas can be taken from the earth in the fields controlled by the parent corporation, in paying quantities. History along this line reveals the fact that the testimony of experts as to the probable life of natural gas is unreliable, and it is for this reason that amortization is guesswork. . . .

"That the product natural gas will eventually die is self-evident. When

it will die is an assumption. An assumption is no stronger than the facts that support it, and it is just and fair to assume that much of the equipment now used in the transportation and distribution of natural gas will be utilized for the transportation and distribution of artificial gas in the future.

"We must accredit to the men who organize and manage public utility corporations in which millions are invested, a higher degree of intelligence and a keener foresight than that of the ordinary individual. Hence to say, or even to think, that upon the failure of natural gas the entire property of a natural gas company would be scrapped would be a puny tribute to those responsible for its conduct."

There is nothing in the evidence to cause any fear as to the future of this company and we must conclude that the company is not entitled to an allowance in this case for amortization of its Springfield property. In connection with what we have here said, let there be no confusion between depreciation and depletion allowances for units of property incidentally consumed in the operation of a business, and an amortization of the property of a company based upon the theory that the business, for some extraneous reason, must end without consumption of part or all of the property in the operation of the business.

[12, 13] Sections 614–49 and 614–50 of the General Code provide that the Commission shall ascertain, determine, and prescribe what are proper and adequate charges for depreciation, which shall be such as will provide that amount required over and above the cost and expense of maintenance to keep the property of the public utility in a state of efficiency corresponding to the progress of the art or industry; the amount so determined to be used for the purpose of renewing, restoring, replacing, or substituting depreciated property in order to keep the plant in a state of efficiency. In order to ascertain and determine what is a proper allowance for that purpose we are guided in the main by the past experience and practices of the company.

"The allowance for depreciation entering into the ascertainment of the rate base of a public utility may be based on past experience, and should not be continued if shown by such experience to be excessive." Smith v. Illinois Bell Teleph. Co. (1930) 282 U. S. 133, 75 L. ed. 255 (syl. 10), P.U.R.1931A, 1, 51 S. Ct. 65.

According to our finding the Springfield property has sustained a depreciation amounting to $220,643 as of December 31, 1934, and at that time the company had accumulated and set aside a depreciation reserve of $393,419, a reserve of $172,775 in excess of its sustained depreciation. It was the practice of the company prior to 1932 to set aside to its reserve for depreciation an allowance annually based on volume of sales. From 1932 the annual allowances were based on percentages of book value of depreciable property. These percentages for the years 1932, 1933, and 1934 were 1.15 per cent, 1.03 per cent, and 1.12 per cent, respectively. From 1925 to 1934, inclusive, the company charged to expenses and credited to the depreciа-

tion reserve annual allowances as follows:

1925	$31,421.97	1930	$19,139.96
1926	32,058.91	1931	17,503.76
1927	23,500.00	1932	15,074.25
1928	24,605.39	1933	13,504.97
1929	20,000.00	1934	14,633.54

Now what were the expenditures from this reserve? In the years 1925, 1926, and 1927 no charges were made by the company to this reserve for retirements and from 1928 to 1934 the retirements charged to this reserve were as follows:

1928	$1,920.80	1932	$1,349.67
1929	6,001.63*	1933	6,295.19
1930	9,712.58	1934	1,167.59
1931	6,631.13		

* Excluding charges covering abandonment of old manufactured gas plant in amount of $16,310.

We observe that from 1928 through to 1934 the company charges to expenses and credited to this reserve $124,461 and in the same years charged to this reserve for retirements and depreciation purposes a total of $33,099, an annual average during that 7-year period of approximately $4,720. Considering these charges to this reserve, the service of this plant, and that this property is in approximately 85 per cent condition, it is apparent that the company has in the main maintained this condition of its property by expenditures charged directly to expense rather than by drawing upon the depreciation reserve and it would necessarily follow that where the reserve was not resorted to for retirements and replacements that the annual maintenance expenses were higher to that extent. It appears to be the policy of the company to charge most of the retirements and replacements to maintenance expense and limit the major retirements and replacements to charges to the reserve. Considering all these matters we conclude that a composite rate of .7 of one per cent upon the depreciable property ($1,425,793.51, see Appendix D) of the Springfield plant is fair, reasonable, and sufficient at this time for depreciation allowances as contemplated by our statute. The sum to be allowed for that purpose is $9,980.55.

Operating Expenses

The company submitted a statement of operating expenses for the year ending December 31, 1934, set forth in detail in Company Exhibit No. 2. During the progress of the hearing the Commission called upon the company to submit statement of operating expenses for the year 1934 which it later did in the way of Company Exhibit No. 6.

The operating expenses, exclusive of gas purchased, taxes, and depreciation allowance, claimed by the company for the year 1934, amount to $138,289.13, and for the year 1935, with like exclusions of taxes, gas purchases, and depreciation allowance, amount to $123,902.10.

We have given consideration to the items set forth in these two exhibits and have seen fit to disallow some items as proper operating expenses in determining the question of fairness of rates and reduce certain other items as herein specifically referred to.

[14] Management fee: We direct our attention first to the item of $6,878.87 referred to in Exhibit 2 as executive management. This is an amount charged by the Columbia Engineering Corporation, an affiliate of The Springfield Gas Company. Con-

cerning this item, Mr. Seyfert testifying for the company says:

"The first item—Account 427—Salaries of General Officers—consists of a fee charged by the Columbia Engineering Corporation to The Springfield Gas Company for services of the former. It was based upon the actual cost to the Columbia Engineering Corporation and that company's costs allocated to The Springfield Company on the basis of 1 per cent of its gross earnings and .14 per cent of its investment."

This is strictly a management fee based upon per cent gross earnings and investment rather than upon a charge for specific services rendered to the operating company. It is always incumbent upon the company when urging an expense of this character to show that services were actually rendered for the company, the nature of the same, and that the amount paid is fair and does not exceed the actual cost of rendering the services. This principle has been so universally announced that it should not require citation, but it might not be amiss to refer to a few instances wherein courts and other Commissions have so held:

"The Commission is empowered to disapprove or disallow the payment of a management or engineering fee to a related company unless satisfactory proof is submitted of the cost to the affiliated interests of rendering the service or furnishing the property or the service." Department of Public Service v. Grays Harbor R. & Light Co. (Wash. 1936) 12 P.U.R.(N.S.) 178, 181 (syl. 29).

"The amount of a payment by an electric utility to its parent company for management services should be disallowed when the utility fails to establish the reasonableness of the arrangement, or of the amount paid, in view of statutory requirements and *general legal principles.*" Department of Public Service v. Pacific Power & Light Co. (Wash. 1936) 13 P.U.R.(N.S.) 187, 189 (syl. 27).

"The percentage method of making charges to operating divisions of a utility by a management corporation should not be used, since there is no relation between service rendered and gross revenue." Re Northern States Power Co. (N. D. 1936) 15 P.U.R.(N.S.) 126 (syl. 10).

"A management fee paid to an affiliated company should be disallowed as an operating expense when the utility company fails to sustain the burden of proving what expense the affiliated company has actually incurred in rendering the service, if any." Re Community Nat. Gas Co. (Tex. 1936) 15 P.U.R.(N.S.) 149 (syl. 15).

"The amount of a management fee constituting a percentage of gross revenues paid to an affiliated company should be eliminated from operating expenses when no evidence is introduced whereby the Commission can determine that the administration expenses are just and proper." Public Service Commission v. St. Joseph R. Light, Heat & P. Co. (Mo. 1936) 14 P.U.R.(N.S.) 113 (syl. 28).

"Management fees charged against a public service company by a holding corporation, in control by virtue of its stock ownership, should be closely scrutinized and adequate proof of the benefit or advantage accruing to the public service company, and in

turn to the public, by the management contract should be required." Scranton-Spring Brook Water Service Co. v. Public Service Commission (1935) 119 Pa. Super. Ct. 117, 14 P.U.R.(N.S.) 73 (syl. 23), 181 Atl. 77.

In the case of Arkansas-Louisiana Gas Co. v. Texarkana (1936) 17 F. Supp. 447, 17 P.U.R.(N.S.) 241, 258, the United States district court, western division, Arkansas, having a somewhat similar question before it held as follows:

"The burden rested heavily upon the plaintiff to show that this was a service of value to the company and not in the nature of extra or additional dividends arising out of the relation of H. L. Doherty & Co. to the affiliated companies. The pipe-line companies were controlled by the Arkansas Natural Gas Corporation, the common stock of which was controlled by the City Service Company, a Doherty organization. Aside from the terms of the contract, I am unable to find in the voluminous record any substantial testimony as to the cost of this engineering service, or of the value of it to the company. While this service has been recognized by the authorities as a proper allowance for operating expenses, yet there must be substantial evidence that the service called for in such contracts has a value to the company commensurate with the price paid and that such price is fair and does not exceed the actual cost of rendering the service. Smith v. Illinois Bell Teleph. Co. (1930) 282 U. S. 133, 75 L. ed. 255, P.U.R.1931A, 1, 51 S. Ct. 65; Western Distributing Co. v. Kansas Pub. Service Commission, 285 U. S. 119, 76 L. ed. 655, P.U.R.1932B, 236, 52 S. Ct. 283; Wichita Gas Co. v. Kansas Pub. Service Commission, 2 F. Supp. 792, P.U.R.1933B, 225, 537."

In the syllabus of the case (17 P.U.R.(N.S.) 241) we find the following:

"A utility company attacking ordinance rates as confiscatory has the burden of proof to show that prices charged by an affiliated company for management services are justified by the value of the service to the utility company commensurate with the price paid and that such price is fair and does not exceed the actual cost of rendering the service."

In our opinion, the company has failed to establish this item as a proper operating expense and considering, too, that no management fees were to be paid to the Columbia Engineering Corporation after December 31, 1934, and only four months of 1934 are included in the ordinance period here involved, we have eliminated this entire item as part of the operating expenses for the year 1934.

[15] Injuries and damages: The company includes in its operating expenses under this classification $2,219.71 for the year 1934 and $2,484.69 for the year 1935. It appears from the record that these items do not represent any actual payments because of injuries and damages for which the company might be liable, but on the contrary represent amounts set aside to a reserve which has been established by the company out of which it might pay claims for injuries and damages. The record shows that $5 was paid out for the year 1934 on account of damages and the record

is silent as to what sum, if any, was paid out for the year 1935. The Uniform Classification of Accounts for natural gas utilities prescribed by this Commission and in effect since January 1, 1921, provides that when the utility desires to set up a reserve for injuries and damages, it shall file with the Public Utilities Commission of Ohio information as to the basis upon which credits to this account are made. It shall so keep the records supporting the entries to this account that it can furnish full information as to the nature and amount of each charge to this account.

The company has failed to satisfy us that this is a proper charge to operating expenses and that payments in the way of damages are proper charges to be paid by the ratepayer rather than by the corporation itself through its stockholders.

Uncollected accounts: The company claims for these items for the year 1934, $2,656.53, and for the year 1935, $1,216.35. These items were likewise arrived at on the basis of creating a reserve rather than representing the actual uncollectible accounts charged off during the year. We find that in 1934 the actual uncollectible accounts charged off amounted to $1,170.82, considering that is the proper item for that purpose of which $1,091.54 is allocable to the city of Springfield. The record is silent as to the actual accounts charged off for the year 1935 and we are disposed to consider the amount to be allowed for that purpose for the year 1935 the same as in the year 1934, but as the amount charged is not at great variance from the amount we have allowed for 1934 we have concluded to accept the figures of the company for the year 1935.

[16, 17] Donations, dues, and memberships: We find that the company has included in its operating expenses for the year 1934 (City Exhibit A) certain items for donations and subscriptions, dues, and memberships. It has been universally held that donations to charitable and religious institutions and to organizations and civic clubs, as well as dues and membership fees to clubs and civic organizations, while evidence of the company's interest in public welfare and the upbuilding of the community and its participation in public activities, are to come out of surplus and not chargeable to ratepayers through the medium of operating expenses. It is generally recognized that the ratepayers themselves are likewise making similar contributions. Department of Public Service v. Grays Harbor R. & Light Co. *supra;* Grand Forks v. Red River Power Co. (N. D. Dist. Ct. 1936) 12 P.U.R. (N.S.) 353; Department of Public Service v. Pacific Power & Light Co. *supra;* Re Community Nat. Gas Co. *supra;* Blytheville v. Blytheville Water Co. (Ark. 1936) 15 P.U.R. (N.S.) 177, and Re Northern States Power Co. *supra.* The items, $819.15 dues and membership, and $621.35 for donations and subscriptions will be excluded.

[18] Rate case expense: The items charged in 1934, Operating Expenses, as Public Utilities Commission Expense, Company Exhibit 2, and Rate Survey Expense, City Exhibit A, will not be considered by us at this time as part of operating expenses. In order to test the reasonableness of an

ordinance rate, no rate case expense should enter into our computation. Should the Commission later find and determine the ordinance rate to be unjust or unreasonable, the item of rate case expense will receive further consideration.

[19] Taxes: We find that the company has paid no Federal income tax in the year 1932 and subsequent years. Where no payments have been made for such purposes, the company is not entitled to an allowance therefor by resorting to an estimate to be charged to the ratepayer.

As to the items of excise taxes and Public Utility Commission tax, we have computed the same on the basis of total cost of service including cost of purchased gas at the city gate at contract price of 45 cents per thousand cubic feet. This, however, is subject to reduction in the event of a finding of a lower gate rate. No other method of computing these taxes at this stage of the proceeding is practical, and in determining the excise taxes and Public Utility Commission taxes for 1935, we have computed the same on cost of service, exclusive of cost of gas at city gate. There is therefore included for 1935 only the portions of these taxes assignable to distribution.

The Ohio Fuel Gas Company purchased The Springfield Gas Company as of April 1, 1935. Prior to that date, The Ohio Fuel Gas Company furnished gas to The Springfield Gas Company at a contract price of 45 cents per thousand cubic feet. Prior to April 1, 1935, The Springfield Gas Company paid state excise and Public Utility Commission taxes on its total sales of gas and The Ohio Fuel Gas Company paid excise taxes on its sales to The Springfield Gas Company at 45 cents per thousand cubic feet. After merger of these two companies the tax on gas at the city gate was eliminated. Therefore, a calculation on excise and Public Utility Commission taxes should include the first three months of 1935 on the same basis as for 1934. However, the record does not disclose the receipts or operating expenses of the separate companies for their respective periods of ownership during 1935. Without this information, the correct calculation of these taxes for 1935 cannot be made, and the Commission has adopted a figure for that year based upon all available information which it considers to be fair and equitable.

[20] Rate of return: The majority of the Commission is disposed to allow 6 per cent as a fair, proper, and reasonable rate of return, considering the Springfield plant as a distribution system only, to be computed upon the rate base of the property herein found to be the present fair value of property in Springfield. At this rate, the annual return to the company for the years under consideration is $87,780.17.

As a result of our finding and computations as herein set forth, we conclude that 20.22 cents per thousand cubic feet of gas based on sales in the years 1934 and 1935, in the city of Springfield, is a fair and reasonable rate representing the distribution cost in said city for the ordinance period. The rate to be charged for gas to be delivered at the gate is a matter to be determined later by the Commission when all facts pertaining thereto can be inquired into. This further

inquiry to be instituted at an early date.

Attached hereto and made a part of this finding are, Appendix A setting forth the rate base, Appendix B operating expenses allocated to the city of Springfield, Appendix C summary of costs of distribution, Appendix D statement of depreciable property and calculation of excise and Public Utility Commission taxes, Appendix E statement of adjustments to cost of distribution as shown in Company Exhibits A and 6.

No mention has been made herein of unaccounted for gas. That item will be taken into consideration when the rate to be charged for gas is determined.

WILLIAMS, Commissioner, dissenting: The instant proceeding does not contemplate the fixing of the city gate rate for gas consumed during the period covered by the ordinance in question. The majority opinion very properly excludes consideration of rate case expense, at least at this time. Should the city gate rate, if and when established, when added to the cost of distribution as herein found, produce a total in excess of the rate provided in the ordinance, then and in that event such expense becomes an allowable item.

Rate of Return

I feel that the rate of return upon the rate base should not be less than 6½ per cent. A distinction between a fair return and confiscation should be made. I make no claim that 6 per cent is confiscation. I believe no court would hold it to be. I do earnestly contend, however, that anything less than 6½ per cent does and would not constitute a fair return. Equity stockholders should have protection commensurate with the risk taken.

It is difficult to discuss the question of "rate of return" without duplication in the discussion of "Annual depreciation allowance," which latter subject is later briefly touched upon herein. The depreciation allowance has been fixed by the majority opinion at .7 per cent. Suffice it to say that I feel that both the return allowance and depreciation allowance are too low. Had either been higher the net result would have been more equitable. This doctrine is recognized by the Supreme Court of the United States in the case of Dayton Power & Light Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 290, 78 L. ed. 1267 (syl. 11), 3 P.U.R. (N.S.) 279, 54 S. Ct. 647, wherein, among other things, it is said:

"An excessive allowance for depletion in fixing rates for a public utility may supply a margin for the correction of other contested items that may approach the border line."

It is contended that the risk incident the ownership and operation of a natural gas distribution plant is less than that incident the ownership and operation of a natural gas production and transmission system. With this I do not agree. The conditions which would render a production and transmission property worthless would likewise seriously depreciate the value of a distribution system. Without the production and transmission of natural gas, none could be distributed. It is true that it is speculative and problematical as to when, if at all, it

will become impracticable to supply natural gas to consumers in the city of Springfield. Such a question is in this case, however, and in my judgment not met by an allowance of 6 per cent return. Our courts have made allowances in lieu of certain depleted assets. Dayton Power & Light Co. v. Ohio Pub. Utilities Commission, *supra;* Columbus Gas & Fuel Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 398, 78 L. ed. 1327, 4 P.U.R.(N.S.) 152, 54 S. Ct. 763, 91 A.L.R. 1403. What would be a more depleted asset than an empty distribution system? It is contended that this system might be used in the distribution of artificial or manufactured gas. I am unable to adopt this conclusion. The price of such gas is necessarily high. Its heat content is low. It cannot compete with present-day use of coal, oil, and electricity. This contention is too speculative. Money for extension and rehabilitation cannot be secured on this basis, especially when viewed in conjunction with a .7 per cent depreciation allowance.

Administrative Expense

The majority holding excludes, among other things, an item of expense for the year 1934 of $6,879.31. This item represents actual expense as shown by the books of the company which was actually paid by the company to Columbia Engineering Corporation as a fee for executive management of the Springfield property. That this item was actually paid is not denied; that the services, for which it was paid, were performed is not denied; that it would have cost more to maintain locally a corps of executive officers is not denied; that the service was valuable is not denied and that the item is free from duplication is not denied. No city witness claims that the allowance of this item is improper. This item represents a charge and credit between allied companies. This latter suggestion seems to account for all the difficulty.

I understand the law to place the burden upon the company of justifying payments of this character to an affiliate by showing:

1. That the affiliate would not profit by the transactions represented thereby, and

2. That the consideration moving from the affiliate represents a value commensurate with the price paid.

The record in this case meets both requirements. The service was rendered by the Columbia Engineering Company and charged to the Springfield Company at cost to the Engineering Company, allocated to the former company on the basis of 1 per cent of its gross earnings and .14 per cent of its investment. None of this sum got into dividends or was in any manner used in defraying other expense of the Engineering Company. It represents actual costs paid an executive and managerial force which managed, among other property, the gas distribution system at Springfield. No one denies this.

The officers of the Engineering Company devoted all their time to the affairs of their affiliates and whatever attention Springfield needed, it got. Of course it is impossible for any witness to state definitely the exact hours or minutes spent by any individual officer in and with the af-

fairs of Springfield solely. It is entirely possible and indeed highly probable that the mental and physical efforts of any and all these officers, at any given time or at all times, inured to the combined benefit of not only Springfield but to all affiliates as well.

The Springfield gas property has an aggregate value of approximately $1,463,000, distributing over 1,100,000 thousand cubic feet of natural gas annually in a city of large population. Had the Springfield system maintained a separate and distinct corps of officers and managing agents their combined salaries would, in my judgment, attain a sum far exceeding the sum of $6,879.31, herein complained of, and should the company have been in a position to have reported executive officers solely for Springfield, an operating item of at least four times this amount would, in my judgment, have gone unchallenged. Company witness Seyfert says that this sum is ridiculously low. No one intimates otherwise. It was never intended that regulation become a substitute for management. I feel that this item should have been allowed.

Annual Allowance for Depreciation

According to the testimony of Mr. Seyfert, Company Exhibit No. 2, pages 8 and 9, together with other testimony in the record, it is found that the company has retired from its property account the net amount of $367,186.74, which is sufficient to establish the necessity for a reserve. The company has such a reserve set up and the balance in it as of December 31, 1934, was $393,419.77. The foregoing is conclusive that the depreciation reserve was not charged with the major part of the abandoned property. If this had been done the balance in the reserve would be less than $50,000. The balance sheet of the company as of December 31, 1934, shows a deficit of $286,084.42 and since a reserve is an appropriated portion of surplus it is evident the reserve account has not been earned but is merely an entry in the books with no corresponding fund set aside. This is not denied.

So far as I know in no previous decision by this Commission involving rates to be charged for natural gas has the annual allowance for depreciation been less than 1.5 per cent of the present value of depreciable property.

Major cases in which 1.5 per cent has been allowed include Columbus Gas and Fuel Company, East Ohio Gas Company—Cleveland Rates, and East Ohio Gas Company—Akron Rates.

In the East Ohio Gas Company—Cleveland Rates, Case No. 7130 (4 P.U.R.(N.S.) 433) City Exhibit 46 shows that for the total property, replacements through the reserve averaged .264 per cent per annum of the book value for the years 1916 to 1931 (Table 6a) and replacements through charges to income averaged .452 per cent for the same period, in addition to the replacements provided through current maintenance.

For the distribution system, for the same period (Table 6d), replacements through the reserve averaged .227 per cent of book value and replacements through income averaged .622 per cent of book value.

As of December 31, 1931, the reserve for depreciation amounted to

47.63 per cent of the book value of the property (Table 2a).

Of this reserve, the portion applicable to the distribution system was 32.16 per cent of the book value of the distribution system (Table 2a).

In allowing a composite of 1.5 per cent on the total value of the property (1934 annual report, p. 198), the allowance for distribution property was 1.6 per cent of the present value.

The majority Commission in arriving at .7 of 1 per cent for depreciation took an average of charges to depreciation during the seven years prior to 1935 and multiplied it by two and a fraction. The record does not disclose what part, if any, of these charges was for labor. To the extent that labor entered into these charges, the amount of plant replacements would be reduced.

The company started to build its reserve account in 1916. From 1916 until and including the year 1928 this book reserve had amounted to approximately $259,000. During this period the company had charged from 2 per cent to better than 4 per cent. From 1929 to 1934, both years inclusive, a rate in excess of 1 per cent was charged but which only increased the reserve by approximately $22,000.

The United States Supreme Court has said in Knoxville v. Knoxville Water Co. (1909) 212 U. S. 1, 13, 53 L. ed. 371, 29 S. Ct. 148.

"A water plant, with all its additions, begins to depreciate in value from the moment of its use. Before coming to the question of profit at all the company is entitled to earn a sufficient sum annually to provide not only for current repairs but for making good the depreciation and replacing the parts of the property when they come to the end of their life. The company is not bound to see its property gradually waste, without making provision out of earnings for its replacement. It is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning."

I feel that with a return of 6½ per cent, an annual allowance for depreciation of not less than 1.5 per cent should be made.

KENTUCKY PUBLIC SERVICE COMMISSION

Re Wholesale Rates for Electric Power to Rural Coöperative Associations

[Administrative Order No. 22.]

Rates, § 144 — Reasonableness — Average costs — Classes of service.

1. Average cost figures are not a conclusive test of the reasonableness of a rate proposed for a particular class of service, as charges for each class

of service do not conform to average costs, but all classes taken together must provide revenue equal to the total cost of furnishing the service, including a reasonable return on investment, p. 26.

Rates, § 367 — Electric — Wholesale to rural coöperatives.

2. A special classification and rate for electric service to rural coöperative associations, sufficient to cover out-of-pocket costs incident to the service and in addition to contribute a substantial margin to apply against general overhead costs and fixed charges, was held to be fair and compensatory and not unreasonably discriminatory in relation to rates and charges for other classes of service, p. 27.

Discrimination, § 53.1 — Different rates and classes — Service to rural coöperatives.

3. A different rate for wholesale service to nonprofit electrification coöperatives than for service to other classes is not unreasonable within the meaning of statutes prohibiting discrimination, when such service is not rendered under conditions the same, or substantially the same, as those under which service is furnished to other classes, p. 27.

Discrimination, § 53.1 — Electric rates — Classifications — Wholesale service to coöperatives.

4. Rural nonprofit electrification coöperative associations constitute a distinct and reasonable classification of service for which a special classification and rate may be ordered without creating unreasonable or illegal discrimination, in view of the enthusiasm of these organizations and their active load-building programs, making it likely that their service will develop characteristics substantially dissimilar, particularly in diversity with existing loads, from any other class of electric business, and in view of the recognition which must be given to the nonprofit government-sponsored nature of the business and the vast social benefits which will follow from improved living conditions on the farms, p. 27.

Discrimination, § 27 — Rates — Attraction of business — Rural coöperative associations.

5. Furnishing electric service at special rates to customers constituting a distinct class and in a position to supply themselves, as in the case of nonprofit rural electrification coöperative associations, for the purpose of increasing business, is not unreasonably discriminatory where the increased output will benefit all consumers by decreasing the unit costs of service, p. 29.

Discrimination, § 27 — Rates — Competition as factor — Rural coöperatives.

6. A special classification and rate for service to rural electrification coöperatives in a position to supply themselves, where the rate will cover the out-of-pocket costs of rendering service with a margin for contribution to general overheads and fixed charges, is justified under the rule that competitive conditions justify rate differences between utility customers, p. 30.

Rates, § 126 — Reasonableness — Ability to pay — Rural electric coöperatives.

7. Electric utilities may reasonably be required to serve nonprofit rural electrification coöperatives at rates which will produce a lower margin of profit than for certain other classes of service in view of the rule that ability to pay is an element to be considered in determining a fair and reasonable rate level, p. 30.

Rates, § 162 — Reasonableness — Factor of social advantage — Rural electric coöperatives.

8. The material social advantages of rural electrification, which will benefit the public generally, constitute a justification for a special classification and rate for service to nonprofit rural electrification coöperative associations, p. 31.

Discrimination, § 12 — Powers of Commission — Special rate classification — Nonprofit rural electric coöperatives.

9. The Commission, in the exercise of its administrative and discretionary powers over utility rates and practices, may authorize and require a special classification and rate for electricity furnished to nonprofit rural electrification coöperatives, p. 31.

Coöperative associations — Advantages — Rural service.

Discussion by Kentucky Commission of the advantages of the coöperative movement, financed by Federal funds, for providing rural electrification through the creation of nonprofit coöperative organizations, p. 25.

Rates, § 367 — Electric — Rural coöperative resale rates.

Special classification and tariff covering electric service to nonprofit rural electrification coöperatives organized under the laws of Kentucky, p. 32.

[May 15, 1937.]

INVESTIGATION *on motion of the Commission of reasonable wholesale rates for electric power to be furnished rural coöperative associations; special classification and rate established.*

By the COMMISSION: Proceedings in this matter were instituted on motion of the Commission on March 20, 1937, by notice of investigation and order to show cause why a special rate for wholesale electric power should not be adopted by major Kentucky utilities for service to rural nonprofit coöperative associations. The rate suggested in the order of March 20, 1937, provided: [Rate schedule omitted.]

The major electric utilities, operating in Kentucky, which were cited to appear in this matter, and the appearances entered are as follows:

Kentucky-Tennessee Light and Power Company, by Leo Wolford, Attorney, and Kenneth McIntyre, Rate Expert; Kentucky Utilities Company, by Robert Gordon, Attorney, and W. Reed, Vice President; Kentucky Power and Light Company, by Robert Gordon, Attorney, and W. Reed, Vice President; Kentucky-West Virginia Power Company, by J. H. Meek, Attorney, and M. C. Funk, General Manager; Lexington Utilities Company, by Robert Gordon, Attorney, and W. Reed, Vice President; Louisville Gas and Electric Company, by T. B. Wilson, President, and Chas. W. Milner, Attorney; Union Light, Heat and Power Company, by C. G. Eichelberger, Assistant to President.

The Commission's investigation to determine reasonable rates for wholesale electric service to nonprofit rural electrification coöperatives originated

from the fact that rural electrification, through low-cost projects sponsored by the Federal Rural Electrification Administration, has not progressed rapidly in Kentucky primarily because electric power has not been available at rates which farm organizations can afford to pay for such service. The Commission is interested in speedy and orderly extension of electric service to widespread rural areas and desires to do everything in its power to encourage rural development. While the agency providing rural electrification is unimportant, provided adequate and continuous service is made available at lowest possible cost, the Commission believes that the coöperative movement, financed by Federal funds, has certain advantages not possessed by other utilities serving in rural areas. This is particularly true in respect to cost of capital and overhead expenses which are substantially lower for the coöperatives than for the average privately owned public utility. It is apparent, however, that a satisfactory source of power is of paramount importance to the ultimate success of rural electrification through the organized farm groups as contemplated in the Federal program.

The coöperative organizations have two primary alternatives in obtaining electric power: purchase from existing sources, thus bringing about more economic utilization of present generating capacity of private and municipally owned utilities; or construction of independent generating plants to serve their needs. Since adequate capacity for rural electric service is generally available in the power plants and transmission lines of utilities now serving the state, new independent generating plants are not required. It appears obvious, therefore, provided rates are reasonable and no higher than the cost of power furnished from new plants, that use of existing generating capacity for the rural electrification program should prove advantageous to everyone concerned. This course of action would not only conserve Rural Electrification Administration funds, thus making possible construction of additional distribution lines extending service to a larger number of farms, but would also tend to reduce the average unit costs of the utility companies which should benefit all users of electric service.

According to representatives of the Rural Electrification Administration and the coöperative groups, energy must be made available at a rate not greatly exceeding one cent per kilowatt hour, if the coöperative enterprises are to have sound economic development. It is also contended that unless such a rate is obtained for existing sources of power, the coöperatives will be required to construct independent generating plants and perhaps abandon some of the smaller projects altogether. That this is no idle threat is demonstrated by the fact that the Rural Electrification Administration has already approved construction of such plants in several states where existing utility companies have been unwilling to supply current at satisfactory rates. The Commission is hopeful that a similar situation will not arise in Kentucky and to avoid such wasteful duplication of investment, has undertaken this investigation.

The rate proposed for service to

rural nonprofit coöperative associations in the Commission's order to show cause dated March 20, 1937, was developed after considerable study of the requirements of the coöperatives and a limited investigation of the additional costs which might be expected to result to the utilities cited herein from such added load. The level of the proposed rate is somewhat above that desired by the Rural Electrification Administration but lower than the standard rates of the various companies for light and power service or for wholesale service to other small utilities. So far as it could be determined, however, the proposed rate is substantially higher than the increment costs for even the highest cost producer of the group of companies cited in this docket. In short, it is intended that the proposed rate will cover the out-of-pocket costs incident to this service and, in addition, contribute a substantial margin to apply against general overhead costs and fixed charges of the utility, thus eventually making possible reductions in the charges for other classes of service.

To obtain the reactions of the affected companies to the Commission's proposal, a hearing was held on April 6, 1937, at which each of these companies was represented. However, no factual evidence of material importance was submitted. The respective companies restricted their presentations to general statements that the proposed classification and rate is discriminatory, demonstrating this contention by comparisons with charges for other classes of service. No evidence was submitted to show that the proposed rate will provide less revenue than the actual costs incurred by the companies in furnishing this service.

Upon promise of certain companies to produce factual evidence if time were permitted for preparation, the proceeding was continued and a second hearing scheduled for April 22, 1937, at which the same companies were represented. However, with the exception of the Kentucky-Tennessee Light and Power Company, no attempt was made to introduce factual material, the companies reiterating their position that the proposed rate would be discriminatory and should therefore not be required by the Commission.

[1] The Kentucky-Tennessee Light and Power Company introduced certain statements of operating expenses and "average costs" per unit of service. A well-recognized principle in rate making is that the charges for each class of service do not conform to "average costs" but that all classes taken together must provide revenue equal to the total cost of furnishing the service, including a reasonable return on investment. Some classes of service yield more than average costs while others produce less, the overall result being the average for the company. Accordingly, the "average cost" figures presented by the Kentucky-Tennessee Light and Power Company are not a conclusive test of the reasonableness of a rate proposed for a particular class of service. In fact, "average cost" figures mean nothing in determining rates and charges for various classes of service.

The Commission has investigated certain of the operating problems of the Kentucky-Tennessee Light and

Power Company and finds that in certain districts, the company's operations are hampered by high cost of energy purchased from other utilities. This is particularly true in its Bloomfield and Irvine districts where the average cost of energy purchased approaches 2 cents per kilowatt hour. While additional energy can be purchased at less than the average cost for present consumption, the Commission does not consider it advisable for the present to require special wholesale rates for coöperative organizations from the Kentucky-Tennessee Light and Power Company in its Bloomfield and Irvine districts.

[2–4] The Commission has carefully studied the companies' claims that unreasonable and unlawful discrimination would result if the proposed special classification and rate is ordered effective for service to rural coöperative associations. We have specially considered the claim that service is being rendered to others under substantially the same conditions and that a distinction in rates would grant an unreasonable preference to the farm groups and impose an unfair burden on other utility customers. We have also reviewed the decisions of courts and other regulatory Commissions with reference to establishing service classifications and to unreasonable discrimination between rates and charges for various classes of service. Having considered all facts in this record and the principles of utility rate making, as we understand them, and after carefully reviewing the Kentucky Statutes relating to discrimination; the Commission is unable to find anything in the law or in the evidence submitted which would support a finding that the proposed classification and rate is unreasonably discriminatory or inconsistent with sound development of the electric business. The Commission concludes, therefore, that except as hereinafter modified, the classification and rate proposed in the order of March 20, 1937, are fair and compensatory, and not unreasonably discriminatory in relation to rates and charges for other classes of service.

Before detailing our reasons supporting this conclusion, we quote from § 3952-32 of the Kentucky Statutes, which provides in part as follows:

"No utility shall as to rates or service make or grant any unreasonable preference or advantage to any corporation or person or subject any corporation or person to any unreasonable prejudice or disadvantage. . . . No utility shall establish or maintain any unreasonable difference as to rates or service either as between localities or as between classes of service, for doing a like or contemporaneous service under the same or substantially the same conditions. The Commission may determine any question of fact arising under this section."

It will be noted from this section that reference is made only to "unreasonable difference" as to rates for service "under the same or substantially the same conditions" and that the Commission may determine any question of fact under this section. The Commission finds, for reasons hereafter set forth, that the difference between the rate herein ordered for wholesale service to nonprofit electrification coöperatives, and the rates and charges for other classes of serv-

ice do not constitute an "unreasonable difference" as contemplated in the statutes. The Commission also finds that such service is not rendered under conditions which are "the same or substantially the same" as those under which other classes of service are furnished. Following are our reasons:

A. Rural nonprofit electrification coöperative associations constitute a distinct and reasonable classification of service.

It has become generally recognized that regulatory Commissions and utility companies may make special rates if based on reasonable classification of service and that such classifications do not amount to illegal discrimination. See Spear & Co. v. Public Service Commission, 105 Pa. Super. Ct. 240, P.U.R.1932D, 384, 161 Atl. 441, and authorities cited therein. This same doctrine was supported by the court of appeals of Kentucky in Southeastern Land Co. v. Louisville Gas & E. Co. (1936) 262 Ky. 215, 221, 13 P.U.R.(N.S.) 55, 59, 90 S. W. (2d) 1. In this case the court also stated that:

"Inequalities and apparent discriminations must necessarily arise out of different circumstances and conditions, but it is not every discrimination that is illegal."

It is our view that rural nonprofit electrification coöperative associations represent a distinct and reasonable classification of service and that no unreasonable or illegal discrimination will result from authorizing a special classification and rate for service to such organizations.

The rural electrification coöperative associations, financed by low-cost Federal funds, constitute an entirely new movement in this country. Never before have large numbers of rural residents joined together for the purpose of electrifying their farms and homes. It is our view that the coöperative spirit of these enterprises will produce results in the way of load and usage substantially better than those ordinarily experienced in connection with utility service.

Electric companies have had no material experience with service to this new class of business. Nothing definite is known with regard to probable demand, load factor, diversity, or seasonal characteristics of service to large coöperative groups of rural customers connected to a single integrated electric system. No present class of utility customers can be considered comparable with the rural electrification coöperative association. In consideration of the enthusiasm of these organizations and their active load-building programs, it appears extremely likely that their service will develop characteristics substantially dissimilar, particularly in its diversity with existing loads, from any other class of electric business. Furthermore, even if it were not for such distinguishing features of load factor and diversity, due recognition must be given to the nonprofit, goverment-sponsored nature of the business and the vast social benefits which will follow from improved living conditions on the farms.

That nonprofit rural electrification associations constitute a distinct and reasonable classification is clearly indicated by action of the Kentucky general assembly which enacted at its

Fourth 1936 Special Session, a law regulating the organization of such coöperatives and giving them special privileges not possessed by other utilities, such as exemption from taxes. (Chapter 6, Acts 1936–37 Special Session.) The principles of reasonable legislative classification are no different than those applying to classification of utility service. The very fact that the general assembly in its wisdom saw fit to pass an act designed to promote the development of rural electrification through the formation of rural electrification nonprofit coöperatives, virtually exempt from taxation, would warrant, within itself, the establishment of a special class of service for such organization by the Commission.

Considering all relevant facts pertaining to fair and proper classification of electric service, the Commission is convinced that ample justification exists for treating the rural electrification coöperatives as a special classification.

B. Special classification for rural electrification coöperatives will attract and promote new business.

[5] The rural electrification coöperative associations propose to develop rural areas which have never before enjoyed the benefits of electric service. Generally, these projects will take in territory previously considered economically unsuitable for development by privately owned utilities. Obviously, such areas cannot be served on a sound basis unless every effort is made to offset their inherent economical disadvantages and to this end, the Federal government has made available low-cost funds for construction and a large staff to assist with the organization and development of the coöperative associations. The facilities of this Commission and the Kentucky Farm Bureau have also been made available to encourage rural electrification. This business cannot be developed and will not exist if not assisted during the promotional period while customers are being connected and a satisfactory load and usage built up.

The Commission will not permit utilities to attract business under rates which impose an unfair burden on the present users. In our opinion however, the proposed rate for nonprofit rural electrification coöperative associations will cover all additional costs incident to furnishing the service with a substantial margin remaining for general overheads and fixed charges. The utilities involved in this matter have been given ample opportunity to prove otherwise and have failed entirely to do so. Accordingly, furnishing service to coöperatives under the proposed schedule will benefit rather than injure present users of electric service.

The additional business will tend to reduce average unit costs and thus break the so-called "vicious circle" between low consumption and high rates. As volume is increased by attracting new business, lower rates will be possible for all classes of service. This has been a controlling element in the past success of the electric utility business. This same principle has been vigorously supported by the utilities in developing their present business and has been generally endorsed by the decisions of courts and regulatory bodies.

The Commission believes that furnishing electric service at special rates to customers constituting a distinct class and in a position to supply themselves, as in the case of nonprofit rural electrification coöperative associations, for the purpose of increasing business, is not unreasonably discriminatory where the increased output will benefit all consumers by decreasing the unit costs of service. Attraction of business where such will benefit all users of service, has long been considered justification for special rates by utilities and regulatory commissions. See Re Green Bay Water Co. (Wis.) P.U.R.1918F, 59; Alpha Portland Cement Co. v. Lehigh Nav. Electric Co. (Pa. 1923) P.U.R.1924E, 737; Maplewood Laundry v. St. Louis County Water Co. (Mo.) P.U.R.1929E, 129.

C. Rural coöperative electrification service is competitive.

[6] As stated above, wholesale power service to nonprofit rural electrification coöperatives is competitive from two distinct points of view. First, for the larger projects, an alternative source of electric power is available by construction of independent generating plants. Second, where independent power plants are not feasible and the rate for power from existing utilities is too high to permit economic development, projects will be abandoned and farmers denied service. Certainly neither of these alternatives should be permitted when power can be supplied from the existing facilities of private utility companies at a rate which will cover all of the "out-of-pocket" costs of rendering the service with a margin for contribution to general overheads and fixed charges.

Commissions and courts have long recognized that competitive conditions justify rate differences between utility customers, and the rate schedules of each of the companies herein cited disclose numerous indications that this same principle has been recognized by their respective managements in developing the business. Cases at point are: Modesto Irrig. Dist. v. Pacific Gas & E. Co. (Cal. 1931) P.U.R.1932B, 203; Re Georgia Power Co. (Ga.) P.U.R.1931E, 449; Re Baltimore County Water & Electric Co. (Md.) P.U.R.1918F, 522; Re United Fuel Gas Co. (W. Va. 1916) P.U.R.1917A, 923; Re Northwestern P. R. Co. (Cal. 1935) 9 P.U.R.(N.S.) 471; Hetland v. Pacific Gas & E. Co. (Cal. 1934) 7 P.U.R.(N.S.) 275; Shaffer Oil & Refining Co. v. Creek County Gas Co. (Okla. Sup. Ct.) P.U.R.1926E, 289, 246 Pac. 630.

D. Ability to pay is an element to be considered in determining a fair and reasonable rate level.

[7] Ability to pay is well established as an important element in determining fair rates, along with cost of service and value of service. See Fett v. Firth (Cal. 1921) P.U.R. 1922B, 505; Potee v. Brooklyn & C. B. Light & Water Co. (Md.) P.U.R. 1915A, 42; Re Great Shoshone & T. F. Water Power Co. (Idaho) P.U.R. 1915C, 921; California Farm Bureau Federation v. San Joaquin Light & P. Corp. (Cal.) P.U.R.1932D, 310; Re Hope Independent Teleph. Co. (Ind.) P.U.R.1926C, 385; Republic v. Republic Water Co. (Wash.)

P.U.R.1928D, 815; Gates v. Tigerton Electric Co. (Wis. 1933) 1 P.U.R.(N.S.) 97.

The nonprofit rural electrification coöperative associations propose generally to serve marginal areas where ability to pay is extremely low compared with territory already served by the utilities. In recognition of this fact, the Federal government is making available low-cost funds for financing these associations and, as pointed out above, the general assembly of Kentucky has recently passed an act designed to promote the development of rural electrification. It is necessary, of course, that rates for service in such areas be within the ability of the potential consumers to pay or customers will be unable to obtain the service and expansion will be impossible. Accordingly, the Commission considers it reasonable and proper that the utilities serve the nonprofit rural electrification coöperatives at rates which will produce a lower margin of profit than for certain other classes of service.

E. Development of rural electrification will have material social advantages which will benefit the public generally.

[8] It is well known that electrification contributes much to a higher standard of living. Electrification of farms will result not only in modern lighting which will facilitate cultural pursuits of all kinds such as reading, home study, and social intercourse, but also in the use of electric power devices and appliances which will lighten the burden of farm work generally. An increase in the standard of farm living by electrification will bring with it increased demands for numerous products, particularly electrical equipment and appliances, plumbing facilities, and farm machinery. Accordingly, development of rural electrification will benefit urban customers by increasing demands for industrial products in addition to the direct benefits of increased volume and reduced units costs for electric service which should make rate reductions possible for all.

Conclusion

[9] The Commission has given careful study to the question of creating a special classification and rate schedule for wholesale electric service to nonprofit rural electrification coöperative associations as indicated by the foregoing review of court and Commission decisions bearing on the controlling rate-making principles. It is our view that the weight of legal opinion is not contrary to the proposed special classification and we believe that adequate authority exists under the Kentucky statutes to permit the authorization and requirement of such special classification and rate to nonprofit rural electrification coöperatives. The Commission finds that action in this matter is a valid exercise of its administrative and discretionary powers over utility rates and practices and that the classification and rate ordered herein are not arbitrary or discriminatory as against other classes of service.

However, in view of the uncertain nature of the loads which will develop on the new rate schedule and the relationship of such loads, diversity and usage to existing classes of business, the Commission will authorize

and require its adoption for a temporary period of two years during which time the Commission will observe its effects on other classes of service and retain jurisdiction to make adjustments should such prove reasonable and necessary during the time the new schedule is in effect. The Commission has also made certain revisions in the rate schedule originally proposed in order to clarify the provisions and impose restrictions on the additional investment which the companies may be called upon to make in connection with service requested under the new schedule. We believe that the schedule herein ordered into effect will adequately cover all of the additional costs of providing the service and will impose no burden on other classes of service for the reasons set out herein.

Temporary Order

It is therefore *ordered,* that the respective utilities cited in this docket, as set forth above, shall file with the Commission on or before June 1, 1937, a special classification and tariff covering service to nonprofit rural electrification coöperatives organized under Chap. 6, Acts of Fourth 1936–37 Special Session of the Kentucky general assembly and that said tariff embody the essential features of the following rate schedule with charges for service not to exceed those included therein:

Rural Coöperative Resale Rate

Effective:

For service from transmission lines in the state of Kentucky owned or operated by the following utility companies: Kentucky-Tennessee Light and Power Company,* Kentucky Utilities Company, Kentucky Power and Light Company, Kentucky and West Virginia Power Company, Lexington Utilities Company, Louisville Gas and Electric Company, Union Light, Heat and Power Company.

Availability: P

Available for service to nonprofit coöperative associations engaged primarily in furnishing electric service in rural areas and taking energy solely for resale and distribution to ultimate users, subject to terms and conditions hereinafter set forth, and such other standard regulations of the respective company as are filed with the Commission and not in conflict herewith. This service classification shall apply separately to each point of delivery.

Character of service:

Power and energy to be delivered hereunder will be alternating current at 60 cycles, the voltage and phase to be that available at the point of delivery on utility's transmission system. The coöperative association shall comply with such reasonable rules and regulations as may be approved by the Commission relating to the installation and operation of all substations connected to the utility's transmission lines. No breakdown or auxiliary service is permitted.

Metering:

The company furnishing the energy shall have the option of metering either at primary or secondary voltage.

*Entire territory, except Irvine and Bloomfield systems.

Rate:

Demand Charge

First 50 kw. of maximum demand per month, $1.25 per kw.
Next 150 kw. of maximum demand per month, $1.00 per kw.
Over 200 kw. of maximum demand per month, 75¢ per kw.

Energy Charge

First 50 hours' use of maximum demand per month, 1¢ per kw. hr.
Excess consumption, ½¢ per kw. hr.

Minimum Charge

The monthly minimum charge shall be $1.25 per kw. of maximum 15-minute integrated demand per month for each point of delivery, but not less than $62.50 for each point of delivery, except that the $62.50 minimum will not be effective for the first 12 months after service is commenced.

Determination of maximum demand:

The maximum demand shall be the maximum average kilowatt load used by the customer for any period of fifteen consecutive minutes of the month for which the bill is rendered, as shown by a maximum demand meter.

Terms of payment:

Customers' monthly bills will be computed at the net rates and there will be added a sum equivalent to 2 per cent of the net bill on all accounts which are not paid in full within ten days of the date of the bill.

Power factor provision:

The customer shall at all times take and use power in such manner that the power factor at the time of maximum demand shall be as near 100 per cent as is consistent with good engineering practice, but when the power factor at the time of monthly maximum demand is determined to be less than 80 per cent, the maximum demand used for billing purposes shall be determined by multiplying the demand shown by the meter at the time of maximum demand by 80 per cent and dividing the product thus obtained by the actual power factor at the time of such maximum demand.

Fuel clause:

If desired by any company required to file this schedule, a fuel clause may be submitted as a part of this rate and subject to Commission approval, which will permit adjustment of the energy charge for changes in fuel prices above or below the range in fuel costs during the six months' period ending April 30, 1937.

Terms of contract:

Initial contracts under this rate shall be in force for a minimum period of two years from the date service under such contract is first rendered and shall continue in effect after the expiration of said initial contract period for yearly periods until canceled by six months' written notice being given by one party to the other of its election to terminate this contract. Where mutually agreeable contracts for periods longer than two years may be entered into by the respective parties. However, no contract, for whatever period, precludes the right of the Commission to require revision in rates or conditions of service under this classification if such changes appear reasonable and necessary before expiration of such contracts.

Special terms and conditions:

1. No substantial additional investment in transmission lines or substation facilities is contemplated under the above rate. Where connection of potential service loads under this rate makes it necessary to strengthen or

increase the capacity of the company's existing facilities, such cost, in excess of an amount equivalent to three times the expected annual gross revenue from the requested service, will be borne by the coöperative association, the intent of this clause being to limit the additional capital expenditure by the vendor company, incident to furnishing service under this rate to an amount not to exceed three times the annual expected revenue from the coöperative association, or associations, requesting service under such conditions. Contributions from coöperative associations under such conditions shall be required by the company furnishing the service only after review and approval by this Commission.

2. The exact point of delivery or connection between the lines of the company and the lines of the coöperative associations shall be determined by agreement between the coöperative and the company furnishing the service. The Commission will determine a reasonable and satisfactory point of delivery where agreement cannot be obtained between the parties.

3. The coöperative association shall bear the cost of all labor, materials, and equipment that may be necessary or required in making the connection between its facilities and those of the company furnishing the service, except that the coöperative association shall not be required to furnish the watt-hour meter or demand meter or to install such metering equipment.

4. Service hereunder will be furnished at one location. If the coöperative association desires to purchase energy at two or more locations, each location shall be metered and billed separately from the others under the above rate.

5. The coöperative association will have complete responsibility for all operation and maintenance beyond the point of delivery and will save the company harmless against liability for injury or damages, resulting in any manner from construction, location, operation, or maintenance of the coöperative's lines and facilities.

It is *further ordered,* that the classification and tariffs filed in compliance with this order shall continue in force and effect for a temporary period of two years from June 1, 1937, unless previously modified by action of the Commission, arising from complaint by coöperatives, utility companies, or on motion of the Commission. During such temporary period, the Commission will observe the effects of the new classification and tariff on the business of the utilities and the development of the coöperatives and take appropriate action as warranted and required in the light of actual experience, and

It is *further ordered,* that the utilities affected by this order, shall file with the Commission at 3-month intervals starting with July 1, 1937, a statement of the coöperative associations furnishing service under this rate and record of their respective monthly maximum demand, load factor, kilowatt hours consumed and monthly bill; and

It is *further ordered,* that jurisdiction be retained in this matter to make such changes as are necessary and reasonable either during the temporary 2-year period or after such period has expired.

TEXAS COURT OF CIVIL APPEALS. AUSTIN

Railroad Commission of Texas et al.

v.

Humble Oil & Refining Company et al.

[No. 8502.]

(101 S. W. (2d) 614.)

Public utilities, § 49 — What constitutes — Wholesale natural gas company — Contract with distributor.

1. A gas and oil company which, as a small part of its entire business, produces natural gas and sells it to a distributing company is a public utility and subject to the regulatory jurisdiction of the Commission when such sale of gas is governed by a contract the purpose of which is to create and develop within the adjacent territory a domestic consumer market for its gas, the distributing company being bound to develop the territory; in the production and marketing of its gas there is no essential difference between the relation thus created and that which would have existed had the gas and oil company formed a subsidiary corporation and made the same contract with it, p. 37.

Rates, § 391 — Natural gas — Wholesale price.

2. A rate of 5 cents per thousand cubic feet for natural gas delivered by a producing company to a distributing company at the well head was held not to be unjust, unreasonable, or confiscatory, p. 46.

Return, § 70 — Gas and oil company.

3. The fact that a gas and oil company's gas production is an exceedingly small portion of its business in the field, its main business being the production of oil, does not in any way affect the company's right to a fair net return on its investment but it does have material bearing upon the problem involved in determining fair and reasonable basis in arriving at such net return, p. 46.

Rates, § 180 — Reasonableness — Effect of voluntary contract.

4. The integrity of estimates of the value of wholesale natural gas is seriously discounted by the fact that the gas producer has entered into a voluntary contract with a gas distributing company reducing the price below the amount of these estimates and extending the contract for an additional period, p. 46.

Return, § 101 — Reasonableness of allowance — Natural gas producer.

5. An allowance of 7 per cent for return on the investment of a gas and oil company producing and selling natural gas at wholesale was held to be most liberal in view of low interest rates prevailing, p. 48.

Appeal and review, § 55 — Grounds for reversal — Methods and reasoning.

6. The court in reviewing a Commission order fixing a wholesale natural gas rate is not concerned with the question whether the methods, reasoning,

or bases of computation, allocation, etc., employed by the Commission are in every respect free from criticism, but only with the ultimate results, the "totality of consequences," p. 48.

Appeal and review, § 34 — Commission decisions — Burden of proof.

7. Commission orders are prima facie valid and the burden rests heavily upon a public utility contesting such an order to show the contrary, p. 48.

Rates, § 641 — Necessary parties — Natural gas producer — Royalty owners.

8. Royalty owners under mineral leases from which a gas and oil company extracts natural gas for supply to a gas distributing company are not necessary parties to a Commission proceeding to determine the reasonableness of the rate charged for the gas, p. 48.

Rates, § 648 — Evidence — Effect of admissions in tax report.

Discussion of sworn statements by a company official as to the value of natural gas as affecting a determination of a proper rate for gas, p. 41.

Apportionment, § 4.1 — Natural gas — Price at well head.

Discussion of estimates of fair value of natural gas predicated upon different theories or methods of allocation and accounting, in a proceeding to determine a reasonable rate for gas at the well head, p. 47.

Evidence, § 27 — Expert testimony — Weight.

Discussion of the value of expert testimony as affected by the expert's approach to the question and the criteria governing estimates, p. 47.

[December 23, 1936. Rehearing granted in part February 17, 1937.]

APPEAL *from judgment of District Court enjoining the enforcement of a wholesale natural gas rate order; reversed and injunction dissolved.*

APPEARANCES: Wm. McCraw, Attorney General, Alfred M. Scott, Assistant Attorney General, and F. L. Kuykendall, Former Chief Examiner, Gas Utilities Division, Railroad Commission of Texas, of Austin, for appellants; J. E. Edmundson, J. Lee Dittert, and C. D. Duncan, all of Bellville, Powell, Wirtz, Rauhut & Gideon, and T. H. McGregor, all of Austin, and R. E. Seagler, Lee M. Sharrar, and Robt. F. Higgins, all of Houston, for appellee.

McCLENDON, C. J.: This is a public utility natural gas rate case, brought by Humble (appellee Humble Oil & Refining Company) against the Commission (appellant Railroad Commission of Texas) and its members, in the nature of an appeal from that portion of a Commission order which fixed at 5 cents per thousand cubic feet the maximum well-head price of gas in the Raccoon Bend field (Austin county) sold under contract by Humble to M & M (M & M Pipe Line Company, a public utility); and for ancillary injunctive relief. Certain royalty owners under mineral leases from which the involved gas was supplied to M & M were permitted to intervene as parties plaintiff.

Interveners contend that the order is void because they were not notified

of or made parties to the Commission hearing. Otherwise the case presents two phases, involving, respectively, the issues: (1) Whether Humble in its relation to M & M is a public utility and its contracts and rates subject therefore to the Commission's regulatory jurisdiction; and (2) whether the well-head rate fixed by the Commission is unjust, unreasonable, or confiscatory.

[1] The trial was to the court without a jury, and at the conclusion of the evidence judgment was rendered in favor of Humble and interveners, setting aside the Commission order and perpetually enjoining its enforcement. The court, upon seasonable request, filed findings of fact and law, predicating its judgment upon the holding that the Humble was not a public utility and not subject to the Commission's jurisdiction. The court declined to make findings upon the issue whether the order was unjust, etc.

Upon the above first phase and issue thereunder, appellees' contentions may be thus substantially stated: It was not the intention of the Public Utility Act (R. C. S. Arts. 6050–6066, as amended [Vernon's Ann. Civ. Stats. Arts. 6050–6066]) to classify as a public utility, and subject to the prescribed regulation, "a producer of gas who neither transports such gas over and across the highways of the state, nor exercises the right of eminent domain, nor sells such gas nor offers it for sale to the public generally, but who merely sells under private contract to one concern." If, however, such be the proper construction of the act, it is to that extent void, because "the legislature cannot by legislative fiat change a private business into a public business when it is not such in fact."

The following decisions are cited in support of this contention: Public Utilities Commission v. Natatorium Co. (1922) 36 Idaho, 287, 211 Pac. 533; Humbird Lumber Co. v. Public Utilities Commission (1924) 39 Idaho, 505, P.U.R.1925A, 225, 228 Pac. 271; Highland Dairy Farms Co. v. Helvetia Milk Condensing Co. (1923) 308 Ill. 294, 139 N. E. 418; Ohio Mining Co. v. Public Utilities Commission (1922) 106 Ohio St. 138, P.U.R.1923E, 180, 140 N. E. 143; Consumers' Light & P. Co. v. Phipps (1926) 120 Okla. 223, P.U.R.1927C, 216, 251 Pac. 63; Philadelphia City Passenger R. Co. v. Public Service Commission, 271 Pa. 39, P.U.R. 1921E, 581, 114 Atl. 642; Clark v. Olson (1934) 177 Wash. 237, 31 P. (2d) 534, 93 A.L.R. 240; State ex rel. Public Service Commission v. Spokane & I. E. R. Co. 89 Wash. 599, P.U.R.1916D, 469, 154 Pac. 1110, L.R.A.1918C, 675; Chippewa Power Co. v. Railroad Commission (1925) 188 Wis. 246, 205 N. W. 900; Avery v. Vermont Electric Co. (1903) 75 Vt. 235, 54 Atl. 179, 59 L.R.A. 817, 98 Am. St. Rep. 818; Nowata County Gas Co. v. Henry Oil Co. (1920) 269 Fed. 742; Texoma Nat. Gas Co. v. Texas R. Commission, 59 F. (2d) 750, P.U.R. 1932E, 509.

In view of our holding to the effect that the Humble brought itself within the letter and spirit of the Public Utility Act under the specific terms of its contract with M & M, it is not necessary to review or discuss these decisions, or to express an opinion up-

on the general propositions embodied in the above contention. Their correctness may be conceded, arguendo, for the purposes of this appeal.

In the following statement we have copied, almost verbatim, excerpts from appellants' brief, omitting, however, the use of quotation marks:

Humble is chartered as a private oil corporation; its principal business consists in the production, transportation, refining, and sale of crude oil and its products. Less than 1 per cent of its total volume of business consists of the sale of natural gas.

The Raccoon Bend field in Austin county is primarily an oil field. Humble there took oil and gas leases (semi-wildcat territory) and started development of the field primarily as an oil field during 1927; developed it as such throughout 1928 and 1929, producing from an oil sand at a depth of 3,000 feet. Later it developed a dry gas sand at a depth of 1,000 feet which to a large extent overlies the 3,000-foot oil stratum. In December, 1934, a new oil-bearing stratum, known as the "Conroe sand," was encountered at a depth of 3,400 feet underlying the 3,000-foot oil sand; and development thereof begun by the Humble. The Humble has a total of about 125 producing oil wells in the field, of which 43 are in the Conroe sand and of which about 50 are flowing wells and the remainder on pumps. About 10 or 12 of the flowing wells are in the 3,000-foot sand, and the 43 wells in the 3,400-foot Conroe sand are flowing. The company developed the 1,000-foot dry gas in an effort to produce oil; but having failed, used it for the production and storage of dry gas.

On June 7, 1928, the Humble made a contract with the M & M (at that time a copartnership), the pertinent terms of which we quote:

"Whereas first party (Humble) is the owner of oil and gas leases covering lands in what is known as the Raccoon Bend oil field in Austin county, Texas, productive of natural gas and may acquire other properties in said field during the life of this agreement productive of natural gas and second party (M & M) plans the construction of a pipe-line distributing system for the delivery of natural gas to the neighboring towns and cities and desires to purchase gas from first party for use in supplying its market through such system:—

"Now, therefore, in consideration of the mutual covenants and obligations herein undertaken and imposed, it is hereby agreed between the parties hereto as follows:

"1. Upon and subject to the other provisions hereof, first party hereby sells and agrees to deliver to second party and second party hereby purchases and agrees to receive and pay first party for a quantity of natural gas produced from the properties of first party above described equal to the full requirements of the distributing system to be built by second party as herein contemplated between a minimum of 180,000,000 cubic feet per year over the period of the contract (to be delivered in approximately equal quantities of 500,000 cubic feet per day) and a maximum of 2,000,000 cubic feet per day if and while this quantity is currently available for delivery from said leases and properties after supplying the fuel needs of first party in its business of

producing, transporting, and refining oil and gas; provided, however, that second party shall not be required to receive gas before the expiration of ninety days from date hereof and shall not be required to receive gas in excess of a minimum of 250,000 cubic feet per day at any time prior to the expiration of six months from date hereof. It is understood that the right of second party to require current delivery from day to day of the quantities of gas sold to it hereunder shall be prior and superior to the rights of other purchasers to require current deliveries to them from day to day of gas from said properties under contracts that may be made between such purchasers and first party. So long as and while first party has the minimum daily quantities herein agreed to be sold and purchased available for delivery from said properties, second party agrees to pay first party for such quantities as hereinafter provided whether such quantities are taken and received by second party or not.

"2. First party specifically reserves the right to manufacture gasoline from the gas produced from said properties and to deliver to second party residue gas from its gasoline plant in lieu of natural gas from the wells, and in such event the gasoline plant shall be the point of delivery and measurements shall be made at such point in the manner hereinafter provided for deliveries from the wells or central delivery points.

"3. Second party agrees to proceed with due diligence in an effort to secure franchises for the sale of gas in the towns and cities in the territory near said Raccoon Bend field and to construct such pipe lines as may be necessary to serve the cities and towns in which franchises are obtained and customers that may be secured by diligent effort, and in any event to construct a minimum of 40 miles of main line pipe lines to such neighboring cities within twelve months from date hereof. It agrees further to use its best efforts to develop a full market through such distributing system. Concurrently with the execution hereof second party is depositing with First National Bank of Houston, Texas, the sum of $10,000 to the credit of both parties hereto and to be held and disposed of by said bank as herein provided. In the event second party shall fail to take a minimum of 250,000 cubic feet of gas per day from first party hereunder within ninety days from date hereof, or should fail to take a minimum of 500,000 cubic feet of gas hereunder per day within six months from date hereof, or should fail to complete as much as 40 miles of main line pipe lines to neighboring distributing points within twelve months from date hereof, or during said period of time shall fail faithfully to carry out the other covenants and agreements herein made to be performed by it hereunder, first party may at its option cancel this contract and require the delivery to it by said bank of said sum of $10,000 together with any interest thereon allowed by said bank, the amount of which deposit the parties hereto have agreed shall be liquidated damages to first party resulting from such failure of performance by second party hereunder. The delivery of such sum to first party by said bank as above provided shall not be

taken, however, as settlement or payment for any gas delivered to second party hereunder. If at the expiration of twelve months from date hereof second party has fully performed all of the covenants and obligations assumed by and imposed upon it hereunder and/or first party shall not elect to cancel this contract on account of failure of performance, then said bank shall deliver said sum of $10,000, together with any interest allowed thereon to second party.

"4. Except as provided in Paragraph 2 hereof, deliveries of the gas sold and purchased hereunder shall be made by first party under well pressure at the mouth of each well, or, upon election of first party, at a central point or points in the field designated by first party. Second party shall lay its own lines and make its own connections with the wells or other delivery facilities fixed by first party as above provided at second party's cost and expense. . . . So far as its rights permit, first party hereby gives and grants to second party the right to maintain and operate its said pipe lines and facilities upon, across, and over the leases and properties of first party from which said gas is produced. . . .

"8. On or before the fifteenth day of each calendar month second party agrees to make payment to first party at Houston, Texas, for all gas delivered by first party to second party hereunder during the preceding calendar month at a price of 12½ cents per thousand cubic feet, such payment to be accompanied by a full statement in detail of daily quantities of gas delivered and of computations involved. In the event the quantity of gas delivered shall not equal the minimum quantities herein provided to be taken by second party, such payment shall be for the value of such minimum quantities as above provided. Past due amounts hereunder shall bear interest at 8 per cent per annum. Second party hereby gives and grants to first party a lien upon all its pipe lines and other equipment and physical property comprising its distributing system through which the gas herein sold shall be delivered to market, as security for the payment of all amounts due first party hereunder, which lien shall be enforceable as any mortgage lien. . . .

"12. Unless terminated as herein otherwise provided, this contract shall be and remain in full force and effect during the productive life of the above described leases and properties of first party to but not beyond a period of ten years from date hereof.

"13. This contract is not assignable by second party without the written consent of first party but, subject to this provision, same shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, assigns, and successors in interest. At the expiration of the 10-year term hereof, second party shall have a preferential right to purchase the available quantity of gas from said properties that first party has for sale not to exceed the amount covered hereby, provided the price and terms offered are agreeable to first party."

This contract was later assigned by the partnership to a corporation of the same name. The Humble gave its assent to this assignment.

On January 7, 1934, by agreement

between Humble and M & M, the well head price was reduced from 12½ cents to 8 cents per thousand cubic feet beginning October 1, 1934, and the life of the contract extended five years from date of its expiration. The minimum daily taking was raised from 500 to 750 and the maximum from 2,000 to 3,000 thousand cubic feet. This minimum taking was conditioned that M & M's contract with Prairie View normal was not terminated or suspended, in which latter event the minimum was to remain as before (500 thousand cubic feet daily).

The trial court's holding that Humble was not a public utility is predicated upon the facts: (1) That there was no affiliation between it and M & M, and (2) that the contract was an "arm's length" one.

In the sense that the contract was voluntary as to each contracting party, neither being under any compulsion to enter into it, it may be proper to classify it as an "arm's length" one. Its proper classification from this viewpoint, however, we do not regard as controlling.

The paramount, if not in fact the only, purpose of the contract, so far as concerned the Humble, was to create and develop within the adjacent territory a domestic consumer market for its gas. It bound M & M expressly and affirmatively to "construct such pipe lines as may be necessary to serve the cities and towns" in the territory, in any event to construct a certain number of miles of pipe line within a stated time. It required a large forfeit to be deposited to insure that this be done. It bound M & M to "proceed with due diligence to secure franchises for the sale of gas" in such cities and towns and "to use its best efforts to develop a full market through such distributing system"; to take a minimum daily quantity of gas or pay the contract price for the deficiency. It secured performance of M & M's obligations by a lien upon all its property used in the distribution of the gas.

In the production and marketing of its gas there is no essential difference between the relation thus created and that which would have existed had the Humble formed a subsidiary corporation and made the same contract with it.

The relation created by the contract clearly, we think, brings Humble, as regards this portion of its business, within the letter and spirit of the Public Utility Act, as being a public utility and subject to the regulatory jurisdiction of the Commission. See State v. Lone Star Gas Co. (Tex. Civ. App. 1935) 11 P.U.R. (N.S.) 283, 86 S. W. (2d) 484 (error ref.), for a full discussion, with analysis and construction of the Public Utility Act.

We pass to the above second phase and involved issue, whether the 5-cent rate is unjust, unreasonable, or confiscatory.

The following excerpt from the order presents its bases as arrived at by the Commission:

"In giving notice of the date of hearing of this matter, we specifically directed that the Humble Oil and Refining Company present to the Railroad Commission material facts upon which the reasonableness of the well

head could be determined. After all evidence had been introduced affecting the M & M Pipe Line Company's properties and operations, Mr. Culberson, presiding officer at this hearing, requested the Humble Oil and Refining Company's representative to proceed with the introduction of testimony calculated to show what a reasonable well head price for gas should be. Instead of complying with this request, the Humble Oil and Refining Company again insisted upon their plea to the jurisdiction, which Mr. Culberson again overruled, whereupon the attorneys for the Humble Oil and Refining Company stated that Mr. Sue, one of their employees, was present to testify if the Railroad Commission desired to call him as a witness. Clearly this was not complying with the order of the Railroad Commission. Whereupon, Mr. H. C. Heard, chief accountant for the gas utilities division of the Railroad Commission, was called as a witness and sponsored in evidence Exhibit No. 18. This exhibit reflected the total volume of gas produced in Austin county and in other counties in Texas by Humble Oil and Refining Company as well as the value of said natural gas as sworn to by an official of the Humble Oil and Refining Company for the year 1934. These figures were taken from the quarterly Gross Receipts Tax Statement filed by the Humble Oil and Refining Company under oath. There were also introduced Exhibits Nos. 19, 20, 21, and 22, which were photostatic copies of the quarterly Gross Receipts Tax Statement filed with the state comptroller by Humble Oil and Refining Company for 1934. The affidavit attached to said quarterly reports reads as follows:

"'The State of Texas, County of Harris.

"'Before me appeared —— being duly sworn, states that he is—(title —) of — (person or firm reporting) —with offices at—(city or town)—, that the foregoing report shows the total amount of gas produced and saved or imported, and subject to taxation, by—(producer or importer)—during the quarter ending ——, and the average market value of said gas produced or imported during said quarter and that said statement is true and correct.

"'_____.'

"Exhibit No. 18 shows that the Humble Oil and Refining Company produced in Austin county 1,881,726 thousand cubic feet of natural gas and that the total value was $29,205.62, which is an average price of $.016482 per thousand cubic feet. The exhibit shows that in the other counties in Texas the Humble Oil and Refining Company produced 10,175,910 thousand cubic feet of natural gas and that the value was $130,549.01, which gives an average price of $.012829 per thousand cubic feet. The total natural gas produced in Texas by the Humble Oil and Refining Company during 1934 was 12,057,636 thousand cubic feet and the total value was $148,392.31, which gives an average price of 1.2307 cents per thousand cubic feet. In other words, in Austin county where M & M Pipe Line Company secures its gas from the Humble Oil and Refining Company the average price for gas at the well head is less than 1¾ cents per thousand cubic feet, accord-

ing to the sworn statement of the representatives of the Humble Oil and Refining Company; yet the Humble Oil and Refining Company up until October 1, 1934, had been charging 12½ cents per thousand cubic feet at the well head and since that time has been charging 8 cents per thousand cubic feet. In an effort to explain away this vast discrepancy in prices, Mr. Sue, the company's witness, said that the average price of natural gas was based upon the value of the casinghead gasoline extracted from the natural gas. That does not convince us that natural gas after casinghead gasoline has been extracted therefrom is any more or any less valuable for domestic purposes than natural gas from which no casinghead gasoline has been extracted, provided the B.T.U. content is the same. The testimony in this case shows that since the M & M Pipe Line Company began operations the Humble Oil and Refining Company has delivered such gas to the M & M Pipe Line Company from wells in what is called a "dry gas sand" and also from the Humble Oil and Refining Company's gasoline extracting plant. This plant was in operation before the contract was signed with the M & M Pipe Line Company. Gas is produced along with the oil and is used as an oil lifting agency. This has a tendency to reduce operating expenses in connection with the production of the oil by the Humble Oil and Refining Company. Before the execution of the contract in question the Humble Oil and Refining Company had been taking the gas produced along with the oil and running it through a stripping plant or a casinghead gasoline extraction plant where the casinghead gasoline was extracted and then the residue gas was repressured into the sand or was used for fuel and plant purposes. Very little, if any, additional equipment was installed to meet the requirements of the M & M Pipe Line Company contract.

"There are three steps in the repressuring stage, one when the gas is brought to a pressure of 35 pounds, one when it is compressed to a pressure of 150 pounds, and one at about 1,000 pounds. Practically all of the casinghead gasoline is extracted before the 150-pound stage is completed. The company considers, for repressuring purposes, that the 150-pound stage is the beginning, and at that point the company has been fully compensated for the cost of the gas. Therefore, we shall consider the gas as free at the 150-pound stage. This 150-pound pressure is more than sufficient to meet the requirements of the M & M Pipe Line Company. The record shows that at various times since the inception of the contract involved herein some gas has been taken from the dry gas sand to repressure the oil-bearing sand and some gas has been taken from the extraction plant and used in representing the dry gas sand. At times the M & M Pipe Line Company has been furnished gas by the Humble Oil and Refining Company from the dry gas sand and at other times from the extraction plant.

"Mr. Sue testified that his company's investment in equipment above the 150-pound stage was about $230,000. He further testified that the total operating expenses in connection

with the entire plant was about $7,000 per month, of which one-third, or about $2,300, was allocated to the operations above the 150-pound stage. During 1934, 1,688,000 thousand cubic feet of gas passed through the 150-pound stage of which 144,000 thousand cubic feet went into the dry gas sand. We think this investment and operating expenses should be allocated on the basis of the volume of gas going into the dry gas sand as compared with that passing through the 150-pound stage and used for other purposes. About 9 per cent of all the gas passing through the 150-pound stage went into the dry gas sand, and therefore, we think, that it is fair and equitable to allocate the $230,000 investment on that basis, that is, giving 9 per cent or $20,700 to the investment necessary to repressure the gas into the dry gas sand. Nine per cent of the $2,300 per month operating expense would give $207 per month operating expense in connection with repressuring the dry gas sand, or $2,484 per year. This operating expense includes all amounts the company has expended for replacements, maintenance, and repairs in connection with the gasoline plant operations above the 150-pound stage. The $20,700 represents the investment as appears on the books of the company. This property has been in use for several years and it is hardly probable that the present fair value would equal $20,700. However, if we assume that the present fair value is $20,700 and that $2,484 is the proper amount of operating expenses to be allocated to the dry gas sand, this would give a cost of about 2.75 cents per thousand cubic feet for the 144,000 thousand cubic feet of gas inducted into the dry gas sand during the year 1934.

"As the Humble Oil and Refining Company has voluntarily dedicated a portion of its properties to the public use and has thereby become a gas utility, we think that that company is duty bound to furnish gas to the M & M Pipe Line Company at a fair and reasonable price consistent with reasonable allowances for return, operating expenses, and depreciation. The testimony in this case shows that the Humble Oil & Refining Company could furnish to the M & M Pipe Line Company gas before it has made its final way through all of the stages of compression. In other words, when the gas has passed through the 150-pound stage it could be furnished to the M & M Pipe Line Company at a cost of only 2.75 cents per thousand cubic feet. The testimony shows that some gas was furnished M & M at this stage. It seems to us that there is little necessity for repressuring the gas into the dry gas sand, except that the dry gas sand can be used as a reservoir for the residue gas after the casinghead gasoline has been extracted therefrom. However, this record shows that out of 203,000 thousand cubic feet of gas sold to the M & M Pipe Line Company in 1934 that 144,000 thousand cubic feet came from the extraction plant. The balance of 60,000 thousand cubic feet came direct from the dry gas sand. If the Humble Oil and Refining Company furnished the M & M Pipe Line Company gas from the extraction plant, based upon the figures submitted, the cost of the gas to the M & M Pipe Line Company should not ex-

ceed 2.75 cents per thousand cubic feet. In any event if the cost of inducting the gas into the dry gas sand, which was 2.75 cents per thousand cubic feet, should be added to the average price of the gas according to the sworn quarterly reports of the Humble Oil and Refining Company, which average price was 1.65 cents per thousand cubic feet, this would give a total value of the gas at less than 4.5 cents per thousand cubic feet.

"The Humble Oil and Refining Company offered as evidence Exhibit No. 23, which purports to show the total investment, operating revenue and operating expenses of the three wells and leases from which the M & M Pipe Line Company is taking a portion of gas sold to it. This exhibit shows a total investment of $24,478.89. It shows a total revenue of $44,061.26, and a total operating expense of $16,050.82. Deducting the operating expense from the total revenue gives a net revenue of $28,010.44. These operating expenses include all cost of replacements, repairs, and maintenance to the wells and leases from the time the wells were drilled. Mr. Sue testified that the present fair value of these wells would be about $275 each, or a total of $825. For the purpose of this calculation, let us assume that the present fair value is the total investment as shown by Exhibit No. 23. These wells were drilled in 1927, 1928, and 1929. A 7 per cent return per annum for seven years would be $11,994.66, which deducted from the net revenue of $28,010.44, leaves $16,015.78 excess earnings.

"If we applied a 7 per cent return and 5 per cent for amortizing the leases to the $825 value testified to by Mr. Sue, and use $2,292.99 as operating expenses, the fair value of the 203,000 thousand cubic feet of gas would be 1.17 cents per thousand cubic feet.

"For the purpose of this calculation we will disregard Mr. Sue's testimony as to the $825 value of the wells, and we will also disregard in its entirety the total investment of $24,478.89, and instead adopt a present value of $15,000 for the equipment and the wells. The average annual operating expense over the period of seven years for the three wells is $2,292.99. Applying a 7 per cent return on the $15,000 present fair value and 5 per cent for amortizing the leases and using $2,292.99 as an average annual operating expense gives a total of $4,092.99. Based upon the foregoing calculations the 203,000 thousand cubic feet of gas purchased by the M & M Pipe Line Company from the Humble Oil and Refining Company should not have cost more than 2 cents per thousand cubic feet at the well head. By adding the 2.75 cents for the cost of inducting the gas into the dry gas sand to this 2 cents per thousand cubic feet gives a total cost of 4.75 cents per thousand cubic feet, after allowing a 7 per cent return and a reasonable amount for operating expenses and amortization of the leases. We think that these calculations are most liberal to the Humble Oil and Refining Company. We see no reason why the cost of the gas to the M & M Pipe Line Company should exceed the cost of inducting such gas into the dry gas sand. The gas could be furnished to the M & M Pipe Line Company be-

fore it is repressured into the dry gas sand. Taking into consideration the average price for gas produced by the Humble Oil and Refining Company in Austin county as shown by the sworn quarterly gross receipts tax statements filed with the state comptroller, which price was 1.65 cents for 1934, and based upon the calculations hereinabove made, we have come to the conclusion that the well head price for gas to be charged M & M Pipe Line Company by Humble Oil and Refining Company should not exceed 5 cents per thousand cubic feet. We think this rate is most liberal because the Humble Oil and Refining Company has already had the advantage of this gas as an oil-lifting agency, and further, has already extracted from said gas a considerable amount of casinghead gasoline, the exact amount of which was not introduced into this record. Whatever amount of money the Humble Oil and Refining Company receives from the M & M Pipe Line Company is additional revenue over and above that contemplated by the company at the time this gasoline plant was built. It is interesting to note that the Humble Oil and Refining Company does not pay royalty upon the basis of 8 cents or 12.5 cents for all of the gas produced from its properties in the Raccoon Bend area where the M & M Pipe Line Company purchases its gas. Mr. Sue testified that the Humble Oil and Refining Company pays the same price it charges the M & M Pipe Line Company for the gas used by it. However, the payee is the Humble Oil and Refining Company itself. In other words, it is taking money out of one pocket and putting it into the other. The royalty owner receives his royalty on the value of the gas as reflected by the quarterly gross receipts tax statements filed by the Humble Oil and Refining Company with the state comptroller, and not upon the basis of the 8 cents at the well head it charges M & M Pipe Line Company."

[2] We have carefully read the statement of facts and the accompanying exhibits, and have reached the conclusion that the 5-cent rate is not unjust, unreasonable, or confiscatory, but, if anything, is what the Commission classed it as "most liberal" to Humble. It would extend this opinion to undue length without useful purpose to consider in detail all the various theories and hypotheses advanced by appellees in support of their several contentions. The problem, in the main, is one of proper allocation of capital investment and operating items taken from figures supplied alone by Humble's books, with the addition of expert views.

[3] At the outset it should be held in mind that Humble's gas production is an exceedingly small portion of its business in this field. Its main business is the production of oil. That was the purpose of its acquisition of the leases and its prospecting operations thereunder. This fact, of course, does not in any way affect the Humble's right to a fair net return on its investment; but it does have material bearing upon the problem involved in determining fair and reasonable bases in arriving at such net return.

[4] From the testimony of Mr. Sue, appellees' only witness, appellants list fifteen different estimates of

the fair value of the gas predicated upon as many different theories or methods of allocation and accounting. These estimates range from a low of 10 cents to a high of 17.1 cents per thousand cubic feet. The integrity of these estimates is seriously discounted by the fact that Humble entered into a voluntary (so-called "arm's length") contract with M & M, reducing the price from 12.5 cents to 8 cents per thousand cubic feet, and extending the contract for an additional 5-year period. Confronted with this palpable inconsistency, Mr. Sue explained that M & M was then $42,000 in arrears in its account with Humble, and the contract was made to insure payment of this arrearage. There are two obvious answers to this explanation: (1) Humble was amply secured in this arrearage by its lien upon M & M's properties; it could have terminated its contract and collected its debts and lien in full through foreclosure; (2) its manifest lost of 2 cents per thousand cubic feet under Mr. Sue's low of 10 cents (10 cents—8 cents) would exceed during the life of the extended contract several fold the amount of the debt. We refer to the following decisions as determinative of the value of this character of expert testimony: St. Joseph Stock Yards Co. v. United States (1936) 298 U. S. 38, 80 L. ed. 1033, 14 P.U.R.(N.S.) 397, 56 S. Ct. 720; Dayton Power & Light Co. v. Ohio Pub. Utilities Commission (1934) 292 U. S. 290, 78 L. ed. 1267, 3 P.U.R.(N.S.) 279, 54 S. Ct. 647; Lindheimer v. Illinois Bell Teleph. Co. (1934) 292 U. S. 151, 78 L. ed. 1182, 3 P.U.R.(N.S.) 337, 54 S. Ct. 658; Los Angeles Gas & E. Corp. v. California R. Commission, 289 U. S. 287, 77 L. ed. 1180, P.U.R.1933C, 229, 53 S. Ct. 637; Knoxville v. Knoxville Water Co. (1909) 212 U. S. 1, 53 L. ed. 371, 29 S. Ct. 148, 154.

Mr. Chief Justice Hughes, writing in the Stock Yards Case, *supra,* at p. 408 of 14 P.U.R.(N.S.) said: "The weight to be accorded to the testimony of the experts cannot be determined without understanding their approach to the question and the criteria which governed their estimates."

And Mr. Justice Moody in the Knoxville Case, *supra,* at p. 18 of 212 U. S.: "The conclusion of the court below rested upon that most unsatisfactory evidence, the testimony of expert witnesses employed by the parties."

The following from Mr. Chief Justice Hughes in the Bell Telephone Case, *supra,* at p. 345 of 3 P.U.R.(N.S.) might appropriately be paraphrased in this connection: "The glaring incongruity between the effect of the findings below as to the amounts of return that must be available in order to avoid confiscation and the actual results of the company's business [here the extended contract] makes it impossible to accept those findings as a basis of decision."

As was said by Mr. Justice Cardozo in rejecting this character of evidence in the Dayton Case, *supra,* at p. 295 of 3 P.U.R.(N.S.): "We shall hardly go astray if we prefer the test of conduct."

We will not burden this opinion with detailed statement of how these various estimates are arrived at; but will confine ourselves to certain general observations regarding the Commission's findings, which will cover

in the main appellees' objections to such findings.

As regards gas from the dry gas sands, the Commission correctly took the then value of the producing wells, as the used and useful property in the gas production business.

The Commission was warranted in considering gas supplied from the stripping plant (150-pound stage) as free gas. Humble furnished no figures concerning the stripping plant operations, but eliminated the stripping plant altogether from its calculations, thus taking the gas originally at the 150-pound stage, the stage at which it was delivered to M & M. Humble's sworn value of the casinghead (wet) gas at the well for production tax purposes was .016482 cents per thousand cubic feet. This figure, Mr. Sue testified, was the market value of wet gas for stripping purposes; in other words, the net value of gasoline resulting from operation of the stripping plant. No part of the repressuring plant was employed in connection with the portion of the residue gas that was delivered to M & M. Payment of production tax upon the wellhead value of the wet gas was predicated, as we understand Mr. Sue's testimony, upon the proposition that the residue gas from the stripping plant had been processed and had passed the production stage. We are not here concerned with the correctness of this proposition.

Now, the contract authorized Humble to deliver either from the stripping plant residue or from the dry gas sand wells, it would therefore have been equitable, at least to Humble, to treat the gas production operation as a whole and estimate the value of M & M gas upon the basis of its whole taking from each source in the proportion that its entire taking bore to the entire production from each source. If this method had been adopted by the Commission, it would have further reduced the fair value of the product.

[5] While no point is made upon the subject, we think the Commission allowance of 7 per cent return upon the Humble investment is "most liberal" in view of the low interest rate prevailing then and now.

[6] We are not here concerned with whether the methods, reasoning, or bases of computation, allocation, etc., employed by the Commission are in every respect free from criticism, but only with the ultimate results, the "totality of consequences." West Ohio Gas Co. v. Ohio Pub. Utilities Commission (1935) 294 U. S. 63, 79 L. ed. 761, 6 P.U.R.(N.S.) 449, 55 S. Ct. 316; Wabash Valley Electric Co. v. Young, 287 U. S. 488, 77 L. ed. 447, P.U.R.1933A, 433, 53 S. Ct. 234; Railroad Commission v. Galveston Chamber of Commerce (1912) 105 Tex. 101, 145 S. W. 573; also Dayton, Bell Telephone, and Los Angeles Cases, *supra*.

[7] The Commission's orders are prima facie valid, and the burden rested heavily upon appellees to show them otherwise. See Lone Star Gas Case, *supra*, and authorities there cited. We are unable to conclude from a review of the entire record that this burden has been successfully met.

[8] We overrule the contention of interveners to the effect that the order was void because they were not made parties to or given notice of the

hearing. The leases and division orders executed by them expressly authorized Humble to sell the gas, only accounting to them for their share of the proceeds as provided in these instruments. They were not parties to the contract with M & M, nor with the extension agreement. The record does not show that they were even consulted in the making of these agreements, but only that they received and accepted payments in accordance therewith. While they were represented by separate counsel in the case, the record does not show that such counsel took any part in the trial other than to show that their clients were not parties to the hearing and that one of them had no previous knowledge of the hearing. The only interest they had in the controversy was whether the Humble was accorded a fair price for the gas. In obtaining such fair price the Humble was their agent and representative with plenary power to act. As we have above held, the contract with M & M dedicated the gas supplied thereunder to public use. Interveners were bound by that contract and its subsequent modification both by express authorization and subsequent ratification. There is no essential difference between the Commission's fixing the price and Humble's agreement thereto, had such been the case. There is no suggestion of criticism by interveners of any act done by Humble which to any degree worked to their detriment, or affected their interests deleteriously. Whether under other circumstances lessors under mineral leases are necessary parties to proceedings of this character, we are not called upon to decide. That they were not necessary parties under the instant record showing we think is clear.

The trial court's judgment is reversed, the injunction dissolved, and judgment is here rendered in favor of appellants.

Reversed and rendered.

KENTUCKY COURT OF APPEALS

W. Taulbee Smith

v.

Southern Bell Telephone & Telegraph Company

(— Ky. —, 104 S. W. (2d) 961.)

Constitutional law, § 20 — Right to hearing before Commission — Number of complainants.

1. A provision in a regulatory act that ten persons who are customers of a public utility company must make a complaint in order to compel action

by the Commission, although the Commission may on its own motion hear a complaint by a single patron, does not violate the Constitution, because such a limitation does not deprive anyone of his right in the final analysis to have his day in court, p. 51.

Service, § 110 — Commission jurisdiction — Exclusiveness — Restriction of toll calls.

2. The Commission has exclusive jurisdiction over the question whether a telephone company should confine a subscriber's telephone service to a local exchange with no toll calls either inbound or outbound, p. 51.

Payment, § 8 — Commission jurisdiction — Exclusiveness — Liability for toll calls.

3. The Commission has exclusive jurisdiction over the question whether a telephone subscriber receiving both exchange and toll service should be exempted from liability for tolls on inbound or outbound calls unless the company shall first make sure that the subscriber consents to pay tolls on such calls, p. 51.

Service, § 2 — Constitutional rights — Telephones.

4. The right to telephone service is not inherent, nor is it a natural right, but a subscriber's right to telephone service comes to him by virtue of the law, and as he is a member of society his rights must be consistent with society as a whole, p. 54.

Commissions, § 3 — Creation and delegation of powers.

5. The legislature may, through the Commission, set up the manner and method of the regulation of telephone service and may authorize the Commission to hear evidence, fix and establish regulations, charges, rates, and services to be rendered to subscribers of the general public, p. 54.

Constitutional law, § 8 — Rights and remedies — Exclusive jurisdiction of Commission.

6. A regulatory act giving a Commission exclusive jurisdiction to regulate rates, service, and practices of a telephone company is not unconstitutional and in violation of § 14 of the Constitution of Kentucky, which gives every person a right to a remedy by due course of law, since the question is always as to the nature and extent of that right and the law defines and regulates his rights and prescribes the remedy for him before the Commission, which is a remedy by due course of law when appeal to the courts is given, p. 54.

Courts, § 19 — Jurisdiction — Exclusive jurisdiction of Commission.

7. It is improper for the court to pass upon the reasonableness of charges by a telephone company for toll calls from a subscriber's station or the extent of toll service to be rendered to such station, in view of the primary jurisdiction and authority of the Commission to pass upon such questions, p. 55.

[April 20, 1937. As modified on denial of rehearing, May 11, 1937.]

APPEAL *from judgment dismissing complaint in action to compel telephone company to restrict toll service to a subscriber's station or to exempt the subscriber from liability for tolls; judgment affirmed.*

APPEARANCES: W. W. Barrett, of Pikeville, for appellant; J. J. Moore and Henry J. Scott, both of Pikeville, and Trabue, Doolan, Helm & Helm, of Louisville, for appellee.

BAIRD, J.: W. Taulbee Smith, circuit court clerk of Pike county, Ky., sued the Southern Bell Telephone & Telegraph Company, doing business in Pikeville, Pike county, Ky., to compel it to furnish service to his public office in the following manner:

"(1) Telephone service confined to Pikeville exchange, with no toll calls either inbound or outbound, or

"(2) Both exchange and toll service,—exempting him, however, from liability for tolls on inbound or outbound calls unless the Telephone Company shall first make sure that plaintiff consents to pay tolls on such calls."

[1–3] Appellee raised the question by proper pleadings that the Kentucky Public Service Commision authorized by Chap. 145, Acts of 1934, pages 580–613 (Ky Stat. §§ 3952–1 to 3952–61), prescribes a full and complete code of laws regulating and fixing schedules, services, rates, charges, practices, rules, and regulations, as to the operation of utility companies, including telephone and telegraph companies; that the schedules, services, rates, charges, practices, rules, and regulations, under which the company was operating, had been approved and fixed by the Commission; that the primary and exclusive jurisdiction over the regulation and supervision of the services, rates, rules, etc., had been, by the terms of the act conferred upon the Commission, and full, complete, and ample remedies are given by the act; that the act provided for an adequate court review of the Commission's orders, acts, etc.

It occurs to the court if the primary jurisdiction is in fact in the Commission, that question should be first decided.

The Public Service Commission is an administrative agency set up and appointed by law for the purpose of hearing the facts and establishing reasonable rules, rates, and services to the public in order to secure conformity of services and rates affecting all classes of customers, because for this burden to fall exclusively on the courts and to give the courts the primary and exclusive jurisdiction to pass upon the reasonableness of the rules, services, rates, schedules, practices, etc., of the telephone and telegraph companies, would lead to confusion and uncertainty, because the result might be that one court would say that certain rules and regulations are unreasonable, and another court might regard the same rules reasonable; consequently, a subscriber of the same class in one locality might obtain one kind of service and the same service be denied a subscriber at another place.

No one is denied his day in court, because the right of review is adequately provided for by the act under § 3952–44, which reads as follows:

"*Court review.*—Any party to a proceeding before the Commission, or any utility affected by an order of the Commission, may within twenty days after service upon it of the Commission's order or from the time when the Commission has failed to act within the period prescribed in § 6 (d)[1]

"1 § 3952–36."

commence an action in the circuit court for Franklin county or any other court of competent jurisdiction against the Commission as defendant to vacate or set aside such order or determination on the ground that it is unlawful or unreasonable.

"If a petition for rehearing has been made as provided in § 6 (d) * of this act, the right to commence an action against the Commission shall be continued for a period of twenty days from the service of the final order in such rehearing upon the party desiring to commence the action. (1934, Chap. 145, § 7 (a). Effective June 14, 1934.)"

The subject of services, rates, practices, rules, and regulations is so complicated and oftentimes so fraught with difficulties and varying circumstances that the business of the country has made it wise for the legislature to enact such laws prescribing a system of regulation and supervision of public utilities such as telephone and telegraph companies, making it necessary to give the Commission the primary authority and jurisdiction to hear complaints, receive and hear testimony of witnesses, and the power to fix reasonable regulations of toll and exchange service, as has been done in the instant case, a violation of such rules by the company in serving the public being subject to heavy fines and penalties.

In the case of Southern Bell Teleph. & Teleg. Co. v. Louisville (1936) 265 Ky. 286, 16 P.U.R.(N.S.) 500, 502, 96 S. W. (2d) 695, 696, the court said:

"The Commission was given jurisdiction over certain utilities enumerated in the act, including telephone and telegraph companies, and was empowered to fix just and reasonable rates after a hearing upon reasonable notice, its findings to be subject to judicial review. Subsection (n) of § 4 (§ 3952–27) of the act empowers the Commission, after a hearing has been had in the manner prescribed in the act, 'to enforce, originate, establish, change, and promulgate any rate, rates, joint rates, charges, tolls, schedules, or service standards of any utility, subject to the provisions of this act, that are now fixed or that may in the future be fixed, by any contract, franchise, or otherwise, between any municipality and any such utility, and all rights, privileges, and obligations arising out of any such contracts and agreements regulating any such rates, charges, schedules, or service standards, shall be subject to the jurisdiction and supervision of the Commission.' That it was the intention of the legislature to clothe the Public Service Commission with complete control over rates and services of the utilities enumerated in the act is evidenced by the concluding paragraph of § 4, which reads:

"'Nothing in this section or elsewhere in this act contained is intended or shall be construed to limit or restrict the police jurisdiction, contract rights, or powers of municipalities or political subdivisions, except as to the regulation of rates and service, exclusive jurisdiction over which is lodged in the Public Service Commission.'

"Every utility subject to the regulation of the Commission is required to file with the Commission a schedule showing all rates then being collected, and is required to adhere to

such schedule until a change is authorized by the Commission after a hearing as provided for in the act."

We also said in the above case, *supra,* that the authority to regulate rates and modes of conducting the business of public utilities is primarily a legislative function of the state, and the right is a police power. Home Teleph. & Teleg. Co. v. Los Angeles (1908) 211 U. S. 265, 53 L. ed. 176, 29 S. Ct. 50; Milwaukee Electric R. & Light Co. v. Railroad Commission, 238 U. S. 174, 59 L. ed. 1254, P.U.R. 1915D, 591, 35 S. Ct. 820

Section 3952–33, Kentucky Statutes, prescribes the proceeding to be followed when a change in rates and services are sought, and this procedure must be followed by all who are permitted to make complaints. If any service is unreasonable or inadequate, complaints must be made as provided by the section, or the Commission may proceed on its own motion.

It is true that it is provided that as many as ten persons, who are customers of the telephone company must make a complaint, which we think is a reasonable regulation, for to permit one person to do so, or a less number than ten, the Commission would be subjected to the whims and imaginative grievances of customers to such an extent that it would be so annoying that the intent and purpose of the law would be virtually destroyed, and the service to the general public would be thwarted if not destroyed. The requirement that the application shall be made by as many as ten is not unreasonable when the question involved affects all patrons of the involved utility, as is true here, since in that case any single patron would have but little or no trouble in obtaining the remaining nine to join him in demanding relief before the Commission.

The court is of the opinion that the primary jurisdiction and authority to fix rates, establish reasonable regulation of service, and to alter and make changes to said regulations and to make investigation as to any change in service as is sought by appellant in the case at bar, is exclusively and primarily in the Commission, but is subject, however, to review, or a rehearing as provided by §§ 3952–36 and 3952–44 of the statutes.

We think the legislature had the authority to invest some discretion in the Commission as the representative of the public in the number of persons necessary to make a complaint and also to state that the number of ten was reasonable to make said complaint, because to give a single subscriber the authority to make the complaint would lead to confusion as well as unnecessary annoyance and might affect the duties and purposes of the Commission in representing the best interest of the subscribers of the telephone company. If, in fact, any single subscriber had a real and substantial ground or reason for complaint, the act authorizes the Commission, of its own motion, acting in the interest of the public and the individual subscriber, to hear the complaint and after due investigation and hearing, to correct any unreasonable situation that might exist. However, the statute does not make it mandatory for the Commission to hear the complaint of a single subscriber. To do so, might cripple and affect the efficiency of the Commission, as it applies to the sub-

scribers in general of the telephone company. It is not in violation of the Constitution to make this limitation, because such limitation deprives no one of their rights in the final analysis to have their day in court.

[4–6] It is insisted that the act is unconstitutional and in violation of § 14 of the Constitution of Kentucky, which provides that:

"All courts shall be open and every person, for an injury done him in his lands, goods, person, or reputation, shall have remedy by due course of law, and right and justice administered without sale, denial, or delay."

Counsel insists that the act is unconstitutional on the theory that it deprives appellant of some inherent property right; that it is also in violation of §§ 2, 3, 29, and 109 of the Constitution of Kentucky. We are unable to agree with counsel. The right to telephone service is not inherent, nor is it a natural right. This right is not the same as his rights to life, liberty, or property. Appellant's right to telephone service comes to him by virtue of the law. He is a member of society and his rights must be consistent with society as a whole. Appellant is not entitled to telephone service on the same ground as he is to the right of life, liberty, and property in contemplation of the Constitution. While every man is entitled under § 14 of the Constitution to a remedy by due course of law, in any event, the question is always as to the nature and extent of that right. The law defines and regulates his rights and prescribes the remedy for him before the Commission, which is a remedy by due course of law when appeal to the courts is given. The right to telephone service under the common law is subject to change by the legislature. When certain conditions exist, the legislature may, through the Commission, set up the manner and method of the regulation of the telephone service, it being a public carrier, and may authorize the Commission to hear evidence, fix and establish regulations, charges, rates, and services to be rendered to subscribers of the general public. The courts cannot compel or control the exercise of legislative functions within constitutional limitations. The legislative right to establish agencies, such as Commissions, has never been questioned. For many year, Boards or Commissions have been operating in the state and much longer in the nation. We have what is known as the Kentucky Railroad Commission, Workmen's Compensation Board, and for many years we had what is known as the Prison Commission, the Election Commission, and many others. The Federal government has now an Interstate Commerce Commission, which was established in the year 1887; a Federal Trade Commission, a Shipping Board Commission, and possibly others. In fact, practically every state in the Union now has laws creating utility Commissions with substantially the same powers as those vested in the Kentucky Public Service Commission, under consideration, which give in almost every instance full and primary jurisdiction over the schedules, rates, services, rules, and regulations of public utilities.

We see nothing in this act that deprives appellant of his life, liberty,

and property without due process of law, nor is he deprived of the equal protection of the law, as provided by § 1 of Amendment 14 of the Constitution of the United States. The act provides for review in court from the decision of the Commission, § 3952–44, Kentucky Statutes. The rights vouchsafed to him by the Constitution are those natural rights, which include the right of personal liberty, the right of personal security, and the right to acquire and enjoy property. Such rights, however, are not absolutely indefeasible, but are so only or until some law is passed, which requires their surrender in consideration of the public welfare. Southern Express Co. v. Whittle (1915) 194 Ala. 406, 69 So. 652, L.R.A.1916C, 278; Schaake v. Dolley (1911) 85 Kan. 598, 118 Pac. 80, 37 L.R.A.(N.S.) 877, Ann. Cas. 1913A, 254; Commonwealth v. Mutual Union Brewing Co. (1916) 252 Pa. 168, 97 Atl. 206.

Personal liberty means in the constitutional sense a liberty regulated by law. It does not mean the absolute and unrestrained right to do as one pleases. The right of the individual is subject to reasonable restraint by general law for the common good. Hall v. Geiger-Jones Co. (1917) 242 U. S. 539, 61 L. ed. 480, 37 S. Ct. 217, L.R.A.1917F, 514, Ann. Cas. 1917C, 643.

[7] We are of the opinion that the Commission has primary jurisdiction and authority to pass upon the rates, charges, services, and whether same are reasonable or unreasonable, and to hear evidence to that effect, and that the act, itself, is in no respect in opposition to the Constitution of Kentucky, or the Constitution of the United States, or any part thereof. We, therefore, find it improper for the court to pass upon the reasonableness of the charges or service complained of by appellant. We find no error in the judgment of the lower court.

Wherefore, the judgment is affirmed. Whole court sitting.

PENNSYLVANIA SUPERIOR COURT

Metropolitan Edison Company

v.

Public Service Commission

(— Pa. Super. Ct. —, 191 Atl. 678.)

Appeal and review, § 32 — Scope of review — Commission decision.

1. A finding of the Commission based upon competent and relevant evidence will not be disturbed; it is not within the province of the court to consider the expediency or the wisdom of the Commission's order, p. 59.

Monopoly and competition, § 103 — Burden of proof — Application by municipality — Effect of ordinance.

2. The burden of establishing that Commission approval of an application by a municipality for a certificate of public convenience to construct and operate an electric plant is necessary or proper for the service, accommodation, convenience, or safety of the public rests upon the municipality, notwithstanding the fact that in the franchise ordinance granting authority to the present utility to operate the municipality reserved the right to produce and sell electricity, p. 60.

Monopoly and competition, § 77 — Municipal and private plants — Question for Commission.

3. The question for the Commission on an application by a municipality for a certificate authorizing the construction and operation of an electric plant where service is being furnished by a private electric company is whether the proposed municipal plant is necessary or proper for the service, accommodation, convenience, or safety of the public, p. 60.

Monopoly and competition, § 78 — Municipal plant construction — Protest by existing company.

4. An electric utility company is not precluded from becoming a protestant against the granting of a certificate authorizing the construction of a municipal electric plant in a borough when the company and its predecessors in title have for many years lawfully supplied electricity to the borough and to its inhabitants under a franchise ordinance which reserved to the municipality the right to construct and operate a plant, p. 60.

Monopoly and competition, § 103 — Evidence — Adequacy of service — Municipal and private plants.

5. Exclusion of proposed testimony as to the adequacy of service furnished by an electric utility company is erroneous in a proceeding by a municipality to obtain a certificate of convenience and necessity for the construction and operation of a competing electric utility plant, p. 60.

Monopoly and competition, § 2 — Policy of state — Regulated monopoly.

6. The policy of the state relating to the regulation of public service companies, as set forth by legislative enactments and judicial interpretations thereof, has been that of regulated monopoly as opposed to unrestrained competition; public utilities, if they rendered adequate service to the public at reasonable rates, could expect to be protected from unfair and ruinous competition, p. 62.

Monopoly and competition, § 5 — Jurisdiction to determine policy — Legislature, courts, and Commissions.

7. The legislature may determine in a statute what the public policy of the state shall be as to monopoly or competition, or it may delegate to such an agency as the Commission the power and duty to determine what it shall be; but in either event the policy thus determined may become a matter for the courts if it seems to contravene constitutional limitations, p. 62.

Monopoly and competition, § 38 — Grounds for admitting competition — Municipal and private plants — Service and rates.

8. Pertinent inquiries which should be made by the Commission in determining whether a municipality should be authorized to construct its own electric plant and distribution system for the purpose of competing with an existing electric company would be: (a) Whether there are any funda-

mental defects in the service being rendered by the existing utility, (b) whether the existing utility has been indifferent to, or neglectful of, its public obligations, (c) whether the existing utility has failed in its obligation to furnish adequate service at reasonable rates, p. 63.

Appeal and review, § 44 — Commission decision — Policy as to monopoly.

9. The Commission's change of policy from one of regulated monopoly to one which it calls regulated competition by municipalities would not in itself require a reversal of an order of the Commission authorizing competition by a municipality, but the Commission cannot, under the guise of regulation, act arbitrarily nor can it capriciously exercise the functions lodged in it, p. 63.

Monopoly and competition, § 38 — Municipal and private plants — Proof as to service and rates.

10. If a municipality could show that a municipal plant could be built capable of generating and supplying electricity to the borough and the residents thereof as now furnished by an electric utility company for such a sum and operated for such costs as to permit rates producing a fair return on the investment less than those charged by the company, it would tend to demonstrate that the company's local rates are unfair and unreasonable for the service rendered, but an assumption that such a proposed plant would yield a fair return on the investment is unwarranted in the absence of proper findings supported by evidence, p. 64.

(KELLER, P. J., dissents.)

[April 26, 1937.]

APPEAL *from Commission order granting a certificate of public convenience and necessity for the construction and operation of a municipal electric plant; order reversed and record remitted for further action. For Commission decision see 12 P.U.R.(N.S.) 39.*

Argued before Cunnnigham, Baldrige, Stadtfeld, James, and Rhodes, JJ.

APPEARANCES: David I. McCahill, of Pittsburgh, Harold J. Ryan, of Reading, and Charles H. English, of Erie, for appellant; Harry H. Frank and John C. Kelley, Legal Assistants, both of Harrisburg, Samuel Graff Miller, Assistant Counsel, and Richard J. Beamish, Counsel, both of Harrisburg, for appellee; Harry A. Honker, of Lebanon, and George F. Baer, Appel and Townsend, Elliott & Munson, all of Philadelphia, for intervener.

RHODES, J.: The borough of Myerstown filed an application with the Public Service Commission for a certificate of public convenience "evidencing its approval of the acquisition, construction, and beginning of the exercise of the right to operate a municipal electric light and power generating plant and for acquiring or erecting a distributing system for such light and power, both for supplying light and power for municipal purposes and to the public generally."

The Metropolitan Edison Company, which has been exclusively supplying electricity to the borough of

Myerstown and the inhabitants thereof for many years, protested.

After numerous hearings, with a resulting record of 2,300 pages, the Commission found that "the erection of the proposed municipal light and power generating plant and distribution system, for supplying light and power for municipal purposes and to the public generally by the borough of Myerstown, is necessary and proper for the service, accommodation, convenience, and safety of the public"; and it approved the application, and granted a certificate of public convenience.

From this order of the Public Service Commission the Metropolitan Edison Company has appealed.

The complaint of the appellant is that the order of the Commission is not based upon findings of fact supported by competent and relevant evidence.

Prior to the incorporation of the town or village of Myerstown into a borough, on February 5, 1912, the territory now within the borough limits was a part of Jackson township. On January 6, 1906, the Myerstown Electric Company was incorporated for the purpose of supplying light, heat, and power by electricity to the public in the township of Jackson, Lebanon county. On March 20, 1907, the Myerstown Electric Company sold and conveyed its franchises and all its property to the Edison Electric Illuminating Company of Lebanon. On July 22, 1912, the Myerstown Electric Light Company was incorporated for the purpose of supplying light, heat, and power by means of electricity to the public in the borough of Myerstown, Pa. On December 16, 1912, a number of electric light and power companies, including the Myerstown Electric Light Company, were merged and consolidated into a new body corporate by the name, style, and title of Lebanon Valley Electric Light Company. On May 8, 1913, the borough of Myerstown approved an ordinance granting permission to the Lebanon Valley Electric Light Company, its successors and assigns, upon certain conditions and restrictions to erect, construct, maintain, and operate its poles, conduits, wires, fixtures, and other necessary appliances, upon, across, over, along, under, and through the streets, alleys, and highways of the borough. Section 12 of the ordinance provided: "The said council reserves to itself the right at any time to erect, maintain, and operate a municipal plant for the manufacture, distribution, and supply of electricity to the public of said borough for lighting, heating, power, or other purposes, and nothing in this ordinance contained shall be construed to deprive or curtail the said borough from the exercise of the authority and right aforesaid, or from the authority and right to maintain and operate a municipal plant for the manufacture, distribution, and supply of gas to the public of said borough, for lighting, heating, power, or other purposes, or from the authority and right to maintain and operate a municipal plant for the manufacture, distribution, and supply of light, heat, and power to the public of said borough by any other means." The terms and conditions of this ordinance were accepted in writing by the Lebanon Valley Electric Light Company. On August 6,

1917, the Metropolitan Electric Company, the Edison Electric Illuminating Company of Lebanon, Pa., and Lebanon Valley Electric Light Company entered into an agreement of consolidation and merger under the name of the Metropolitan Edison Company, which agreement was approved by the Public Service Commission August 15, 1917, and a certificate of public convenience issued to Metropolitan Edison Company; letters patent were issued to the new corporation August 30, 1917.

Appellant has no formal franchise evidenced by an ordinance enacted by the borough of Myerstown other that that approved on May 8, 1913, granting permission to the Lebanon Valley Electric Light Company, its successors and assigns.

The electors of the borough of Myerstown, on May 15, 1934, authorized an increase of indebtedness of the borough "by the amount of $125,000 to provide funds for and toward purchasing land and erecting thereon a municipal electric light and power generating plant and for acquiring or erecting a distributing system for such light and power, both for supplying light and power for municipal purposes and to the public generally."

The estimated cost of this generating plant and distribution system, as fixed by the engineer of the applicant, is $119,838, exclusive of engineering fees, preliminary expenses, and certain other items.

The estimated gross annual revenue of the municipal plant and system is $48,869.22, which is assumed to be the gross annual revenue received by appellant from the borough and its customers therein.

Applicant's proposed distribution system is to be a duplicate of the system of the appellant in the borough of Myerstown. The proposed municipal plant is to consist of 3 Diesel engines having 148, 223, and 300 horsepower, respectively, and 3 A. C. generators having capacities of 100, 150, and 200 kilowatts, respectively.

[1] The duty and scope of inquiry of this court on appeals of such cases as this have been so frequently and exhaustively stated that it is unnecessary to restate them in detail in this opinion. We refer to §§ 22 and 23, Art. 6, of the Public Service Company Law, as amended by Act of June 12, 1931, P. L. 530 (66 PS, §§ 836, 837), and § 24, Art. 6 (66 PS, § 838). Suffice it to say that this court is without authority to set aside a finding of fact by the Public Service Commission which is supported by substantial evidence where no constitutional question is involved, except as provided by Act of June 12, 1931, P. L. 530, § 1 (66 PS, § 836). See Scranton v. Public Service Commission (1923) 80 Pa. Super. Ct. 549, 563. Where the finding of the Commission is based upon competent and relevant evidence it will not be disturbed by this court; the responsibility for such findings is upon the Commission; and it is not within our province to consider the expediency or the wisdom of the Commission's order. See Motor Freight Express v. Public Service Commission (1935) 117 Pa. Super. Ct. 174, 177 Atl. 493; Incorporators of Service Gas Co. v. Public Service Commission (1937) — Pa. Super. Ct. —, 18 P.U.R. (N.S.) 256, 190 Atl. 653; Cage v. Public Service Commission (1937)

— Pa. Super. Ct. —, 189 Atl. 896; Lewistown v. Public Service Commission (1923) 80 Pa. Super. Ct. 528; Collins v. Public Service Commission (1924) 84 Pa. Super. Ct. 58.

[2–4] The applicant, the intervening appellee, in the first instance, had the burden of establishing that the approval of its application for a certificate of public convenience was necessary or proper for the service, accommodation, convenience, or safety of the public. This is true notwithstanding the ordinance approved May 8, 1913. "This state has held that no contract, private or municipal, can be made beyond the reach of regulation because of Art. 16 of the Constitution relating to nonabridgment of the police power." Springfield Consol. Water Co. v. Philadelphia, 285 Pa. 172, 175, P.U.R.1926C, 321, 324, 131 Atl. 716, 717. The right of the intervening appellee to construct its own electric plant as between it and the appellant is not questioned; this right would exist in the absence of any ordinance containing such a reservation. But a condition precedent to the exercise of such right is the obtaining of a certificate of public convenience from the Public Service Commission. It follows that the question for that tribunal was whether the proposed municipal plant of the intervening appellee is "necessary or proper for the service, accommodation, convenience, or safety of the public." See Scranton v. Public Service Commission, 268 Pa. 192, P.U.R.1920F, 661, 110 Atl. 775. The appellant and its predecessors in title had been, since 1912, lawfully supplying electricity to the borough of Myerstown and to the inhabitants thereof; and it was not precluded from becoming a protestant.

The intervening appellee sets forth, inter alia, in its application to the Commission for a certificate of public convenience:

"8. The proposed acquisition, construction, and operation is necessary and proper for the service, accommodation, and convenience of the public for the following reasons: . . .

"(c) The electric service to the people of the borough may be furnished at substantially lower rates than the people of the borough are now paying.

"(d) The borough and the people of the borough and of the community will receive better and more efficient service than they are now receiving."

No evidence was introduced before the Commission to sustain either of these averments; the Commission has made no such direct findings; and the evidence affords no basis for such inferential conclusions.

[5] At the first hearing before the sitting Commissioner the applicant, the intervening appellee, presented Raymond Weiant, as a witness, who was a resident of the borough of Myerstown and who had been engaged for twenty years as foreman of a stone quarry in that borough. He was asked:

Q. That stone quarry was being operated in the borough of Myerstown? *A.* Yes, sir.

Q. Did they ever use electric current from the Metropolitan Edison Company in the operation of the quarry? *A.* Yes, sir.

Q. Will you state what interruptions you had in the service on account of lack of electric current?

Mr. McCahill: Just a minute. We

will ask for an offer and the relevancy of this testimony.

The Commissioner: What do you propose to prove by this witness?

Mr. Honker: Mr. Commissioner, we propose to prove by this witness, as well as by a number of other witnesses, what we allege in our petition: That these communities would have better service than they are now receiving from the present service.

Mr. McCahill: We, of course contend that is immaterial. There is no allegation here that the service is inadequate.

The Commissioner: Has any complaint been filed by the borough or by the citizens of the borough of Myerstown with the Commission for failure to render adequate service?

Mr. Honker: Not that I know of, but I think the question of efficiency is here a question.

The Commissioner: For alleged inadequate service there is a proper procedure before the Commission for that, is there not?

Mr. Honker: Mr. Commissioner, I can well see that this is one way, but it does seem to me that it becomes a question that should be considered in a matter of this character. (Discussion off the record.)

The Commisioner: I rule that any testimony as to unsatisfactory service rendered on any occasion by this company in the past is irrelevant and immaterial in this hearing. (Exception noted for applicant by direction of the sitting Commissioner.)

We are of the opinion that the proposed testimony should have been admitted, and that the ruling of the sitting Commissioner was erroneous. Before proceeding to give our reasons for this conclusion, we quote from the report of the Commission (12 P.U.R. (N.S.) at p. 43) as follows:

"The Commission policy of regulated monopoly as opposed to unrestrained competition and applied to public service companies, is founded upon sound principles tested by experience, but no administrative policy, however valid, can be allowed to harden into a restriction which would disregard the circumstances of a given case. If the administrative policy operates to limit administrative discretion, the body enunciating the policy has bound itself by its own chains, and the policy formulated to accomplish public welfare and advantage may operate to defeat those ends.

"In 1919 this Commission in its opinion in Re Catasauqua, 3 Pa. P. S. C. 1024, P.U.R.1919C, 48, 50, first enunciated the policy of noncompetition by a municipal corporation with an existing public service company. In that case the Commission refused to permit the borough to construct and operate a municipal electric light system where it appeared that a private corporation was then rendering service within the borough. However, it is to be noted that the Commission said: 'We do not intend by this to establish an unalterable policy. There may be instances where a utility company has been so indifferent to and so neglectful of its public obligation that this Commission would be justified in admitting competition, thus selecting the lesser of two evils.'"

At the argument of this case, counsel for the Public Service Commission stated that the Commission had changed its established policy of non-

competition. The reasons for the heretofore noncompetitive policy in this state and the objectives to be attained by the enactment of the Public Service Company Law have been frequently stated by the Commission itself and by our appellate courts. See Relief Electric Light, Heat & P. Co. 63 Pa. Super. Ct. 1, P.U.R.1916D, 592; Jenkins Township v. Public Service Commission (1916) 65 Pa. Super. Ct. 122; Hoffman v. Public Service Commission (1930) 99 Pa. Super. Ct. 417, P.U.R.1931A, 122; Perry County Teleph. & Teleg. Co. v. Public Service Commission (1919) 265 Pa. 274, 108 Atl. 659.

[6] The policy of this state, relating to the regulation of public service companies, as set forth by legislative enactments and judicial interpretations thereof, has been that of regulated monopoly as opposed to unrestrained competition. Public utilities, if they rendered adequate service to the public at reasonable rates, could expect to be protected from unfair and ruinous competition. The Commission is the instrumentality created by the legislature to act as its agent in seeing to it that the public is furnished with adequate service at reasonable rates; it is an administrative agency of the legislature. As a necessary corollary, the Commission is authorized to determine, in the exercise of its administrative functions, when and to what extent an existing utility actually engaged in rendering a public service shall be protected from competition, either from a similar utility or through the rendition of the same service by a municipality.

[7] The legislature may determine in a statute what the public policy of the state shall be, or it may designate to such an agency as the Commission the power and duty to determine what it shall be; but in either event the policy thus determined may become a matter for the courts if it seems to contravene constitutional limitations. The declared public policy is always subject to the scrutiny of the courts. "It must not be understood, however, the act takes from the courts all jurisdiction over public service companies. On the contrary, all acts of this body are subject to judicial scrutiny, but through the channel ordained by the legislature and as set forth in Art. 6 of the Public Service Act [66 PS, § 711 et seq.]." Fogelsville & T. Electric Co. v. Pennsylvania Power & Light Co. 271 Pa. 237, 241, P.U.R.1921E, 767, 770, 114 Atl. 822, 824.

The legislative declaration here involved is contained in § 3 (d) of Art. 3 of the Public Service Company Law (66 PS, § 182), which provides: "Upon like approval of the Commission first had and obtained, as aforesaid, and upon compliance with existing laws, and not otherwise, it shall be lawful. . . .

"(d) For any municipal corporation to acquire, construct, or begin to operate, any plant, equipment, or other facilities for the rendering or furnishing to the public of any service of the kind or character already being rendered or furnishd by any public service company within the municipality."

This is subject to the further requirement found in § 18, Art. 5, of the Public Service Company Law (66 PS, § 681), that "when application shall be made to the Commission by

any municipal corporation for the approval required by the provisions of Art. 3, § 3 (d), of this act,—such approval, in each and every such case, or kind of application, shall be given only if and when the said Commission shall find or determine that the granting or approval of such application is necessary or proper for the service, accommodation, convenience, or safety of the public."

[8] When it is proposed to authorize a municipality to construct its own electric plant and distribution system for the purpose of competing with an existing electric company, which for a number of years has been furnishing service in the municipality, it would seem that some of the pertinent inquiries, which should be made by the Commission in order that the exercise of its discretion may be based upon reasonable grounds, would be: (a) Whether there are any fundamental defects in the service being rendered by the existing utility, due to inadequacy of plant, or distribution system or lack of financial strength.[1] (b) Whether the existing utility has been indifferent to, or neglectful of, its public obligations.[2] (c) Whether the existing utility has failed in any way in its obligation to furnish adequate service at reasonable rates.

For this reason the proposed testimony of the applicant relative to interruptions of service should have been admitted. It also appears that the applicant offered to prove by a number of witnesses that the communities would have better service than they are now receiving from the existing utility. If this could be shown, such a situation would be quite persuasive.

If the Commission had followed in this case its long established policy of protecting existing utilities from ruinous competition, the ruling of the sitting Commissioner on the offers of proof of the applicant might be sustained; but when, as here, the Commission has reversed its policy, it has made such inquiries as we have mentioned most material.

[9] The Commission relies upon the proposition that its order in this case is within its "administrative discretion." It declares that, "in the exercise of that discretion in the field of electric power, a policy of regulated competition by municipalities has been adopted." "Necessarily, the exercise of its administrative discretion is not without some limitation. It may not be capricious, arbitrary, or unreasonable; and an order of the Commission must be founded on competent and relevant evidence, and otherwise be in conformity with law." Cage v. Public Service Commission, *supra*, at p. 897 of 189 Atl. In Incorporators of Service Gas Co. v. Public Service Commission, *supra*, at p. 259 of 18 P.U.R.(N.S.), this court again said: "The Commission does not, however, have unlimited discretion; its acts are subject to judicial review and its findings and final order must have a substantial basis in the testimony."

The Commission may not arbitrarily or capriciously authorize competition in one municipality and deny it in another similarly situated. So far as the present proceeding is concerned, the same findings and order could be made upon the application of any mu-

[1] Re Schuylkill Light, Heat & P. Co. 1 P. C. R. 122.
[2] Re Catasauqua, *supra*.

nicipality when the Commission thinks the municipality could earn a fair return by putting the existing company out of business.

The Commission's change of policy from one of regulated monopoly to one which it calls regulated competition by municipalities would not in itself require a reversal of an order of the Commission; but the Commission cannot under the guise of regulation act arbitrarily, nor can it capriciously exercise the functions lodged in it. See Relief Electric Light, Heat & P. Co. *supra*.

[10] We are not unmindful of the difficulty which would confront intervening appellee in attempting to submit adequate evidence that the rates charged locally by appellant for electric service are unreasonable. We also believe that intervening appellee should not be obliged to engage in protracted litigation to compel a reduction of appellant's rates if they are unfair and unreasonable. It is obvious that the set-up of appellant's financial structure is such as to make that course virtually prohibitive. But if it could be shown that a municipal plant could be built, capable of generating and supplying electricity to the borough and the residents thereof, as now furnished by appellant, for such a sum and operated for such costs as to permit rates, producing a fair return on the investment, less than those charged by appellant, it would tend to demonstrate that appellant's local rates are unfair and unreasonable for the service rendered. Appellant should be able to furnish current at lower rates than a local plant. The only justification for merger and consolidation of small plants into a large system is the ability of the large corporation to furnish better and more adequate service at lower rates. If the result of such merger and consolidation is to charge the public higher rates than those at which a local plant could furnish like service, then there is no reason or excuse for the continuance of its exclusive franchise, and competition, municipal or otherwise, may properly be permitted. The Commission has made no finding as to the cost of such a municipal plant, or the probable operating expenses. It has made no finding that the proposed plant is capable of producing the estimated gross revenues; but the record does disclose that the plant as initially designed, with only three generating units, could not meet the maximum demand admitted by the borough's engineer. An assumption that the proposed plant would yield a fair return on the investment is unwarranted in the absence of proper findings supported by evidence.

The order of the Commission is reversed, and the record is remitted for such further action as the Commission may deem proper, not inconsistent with this opinion.

KELLER, P. J., agrees that the evidence as to the inadequacy of the appellant's service should have been admitted, but he is of opinion that there is sufficient evidence in the record to sustain a finding that the order of the Commission was not arbitrary or unreasonable, and therefore he would affirm it.

Industrial Progress

Allis-Chalmers to Spend $3,000,000 for Expansion

ALLIS Chalmers Manufacturing Company expects to spend between $3,000,000 and $4,000,000 on plant expansion and improvement this year according to Gen. Otto Falk, board chairman. First step and only one definitely decided upon so far, he stated, is reconditioning of the West Allis boiler house at a cost of about $800,000. It is tentatively proposed to spend about $1,000,000 at La Crosse and between $1,000,000 and $2,000,000 for additional production of farm tractors, new machinery and equipment.

Superpower for General Electric Shortwave Stations

GENERAL Electric's short wave stations W2XAD and W2XAF will become the strongest in America and probably in the world, upon completion of a new 100-kilowatt transmitter, permission for the erection of which has just been granted by the Federal Communications Commission.

The new equipment will involve a cost of more than $100,000 and will increase the signals to more than twice their present strength, affording much stronger and clearer reception throughout the world.

Namco Line Voltage Switch

A NEW super-sensitive switch claimed to have unusually long life is announced by The National Acme Company, 168 East 131 Street, Cleveland, Ohio. In the development and manufacture of Chronologs and electrical recording counters, National Acme was forced to develop switches which would stand up under abnormal conditions.

The new Namco super-sensitive line voltage switch has many applications. It may be used as limit switch, safety switch, or in connection with counting devices, circuit breakers, liquid level controls, gauge devices, relays, pressure controls and governors.

The switch is made in five different types: rotary, light contact, oscillating, plunger and push types.

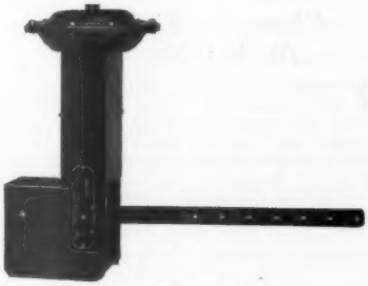
Copperweld Fence Products

THE Copperweld Steel Company has issued a 4-page illustrated bulletin describing Copperweld Fence Fabric and Barbed Wire. Copperweld wire from which these products are made, it is pointed out, is the same high strength, non-rusting material as that used so successfully for over twenty years by power companies and railroads. The folder emphasizes the advantages of using steel for strength and copper for permanence in the construction of fence fabric and barbed wire. The bending and twisting necessary in the manufacture of these products cannot destroy the molten weld of Copperweld wire.

Samples of Copperweld non-rusting fence fabric and barbed wire will be sent upon request to the Copperweld Steel Company, Glassport, Pa.

Taylor Instrument Companies Announce New Lever Motor

A NEW lever motor, designed and constructed specifically to overcome the traditional shortcomings of this type of device, and giving it a much broader field of application, is announced by the Taylor Instrument Companies, Rochester, New York.



Motosteel Lever Motor

Known as the Motosteel Evenaction Lever Motor, it has all-steel welded construction—same as the recently announced Motosteel Diaphragm Valve—for maximum strength, lightness of weight, and permanency of alignment.

This new lever motor is recommended for the operation of dampers, lever operated valves, butterfly valves, electrical rheostat for variable speed motors, for the control of electrical equipment, or for the operation of any device by the conversion of pneumatic energy to linear or angular mechanical motion.

Portable Drinking Fountain

A BULLETIN describing the MSA Sanitary Portable-Drinking (Bubbler Type) Fountain is announced by the Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh, Pa.

The new Portable Drinking Fountain is de-

signed to do away with old-fashioned, disease-spreading water buckets and dipper. It is ideal for public utility crews.

Copies of this bulletin may be secured from the manufacturer.

Public Service of N. J. Plans $12,000,000 Expenditure

THE Public Service Electric and Gas Company recently announced that a $12,000,000 enlargement and improvement program was being launched in the southern part of New Jersey to increase generating and transmission facilities throughout the State.

John L. O'Toole, vice president of the Public Service Corporation of New Jersey, said work would center at the Burlington power station, where a new 100,000 kilowatt turbine generator would be built. The Trenton switching station will also be enlarged for quick and constant State-wide distribution of the Burlington generated electricity, he said.

Orders will be placed, according to Mr. O'Toole, when the actual construction is started, a few months hence. It is expected that the facilities will be ready for operation by late Summer or early Fall of 1939.

Clamp for Simplifying Angle Construction

TO reduce the cost of angle construction on distribution and farm lines, the Ohio Brass Company, Mansfield, Ohio, has developed an improved angle clamp which is easy to install and which permits angles from 30 to 120 degrees to be turned without the necessity of dead-ending the conductors and using jumpers.

Possessing the features of an open seat clamp, this new angle clamp is in effect a one-piece assembly, and no parts need be removed for attaching the conductor. With the conductor laid in the seat of the clamp, it is gripped by merely tightening the nut on the bolt which holds the keeper piece on the conductor and main body casting. This feature also makes it possible to remove the clamp conveniently from an insulator with hot line tools. A lock washer prevents the nut from unloosening in service and causing the wire to slip and sag. The keeper piece is reversible, having two sizes of conductor grooves, and will accommodate all commercial sizes of conductors, from No. 6 AWG to 2/0 ACSR with armor rod (0.18 to 0.60 inch).

The radius of curvature of the clamp seat is 3 inches, which meets the requirements for any copper, aluminum or steel conductor in the range indicated. Provided with a pin through the clevis-shaped upper part of the casting, the clamp is easy to attach or remove. It can be attached to an eye, clevis or hook-type suspension insulator without any intermediate fittings. The clamp body and keeper piece are made of O-B Flecto malleable iron, hot-dip galvanized. While light in weight the clamp has ample strength for conductor tensions in excess of 5,000 lbs., even under full ice, wind and temperature loadings.

Switchgear Catalog Issued by General Electric Company

MODERN Switchgear is the title of a recent 20-page illustrated catalog issued by the General Electric Company. This publication (GEA-2605) described by the company as "a pictorial guide to modern switchgear" is designed to provide a convenient source of information on switch gear apparatus most frequently used. It covers—in tabloid style—137 separate products from the complete line of G E switchgear.

With the illustration of each product is a concise description of its application, ratings, and important features—plus the publication numbers of descriptive bulletins that will give additional information.

This pictorial guide can be used both to save time in selecting individual switching items, and as a handy reference when planning complete switching installations.

For convenience in ordering descriptive publications listed in the catalog, postage-free return cards are included.

Heating-Ventilating Show Attracts Exhibitors

PRINCIPAL sections of the Fifth International Heating and Ventilating Exposition to be held at the Grand Central Palace, New York City, January 24-28, 1938, will include steam air, and hot water heating; humidification and dehumidification; central heating; unit heating; fans, blowers, ventilating, ducts; insulation; instruments; tools and shop equipment; and auxiliaries.

Summer's weather, variable and intense, has provided what is perhaps the ultimate incentive to make the Exposition a "sell out" in terms of exhibit space under contract. Practically every leading concern manufacturing equipment for winter heating and summer air conditioning is already represented among the list of exhibitors.

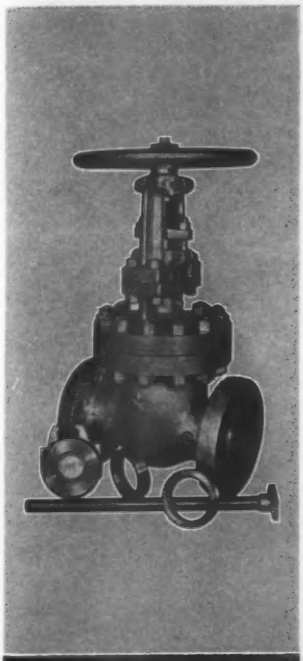
The Exposition will be under the management of the International Exposition Company, whose headquarters are at Grand Central Palace, New York. Charles F. Roth, President, who has been similarly responsible in the direction of all of the earlier Heating and Ventilating Expositions will again be personally in charge.

New Talkie Used to Sell Home Modernization

A NEW talking motion picture, "The House That Jack Built," produced by Mason Wadsworth under the sponsorship of the American Gas Association with the coöperation of "McCall's Magazine" and various manufacturers, is being used successfully by local gas companies to promote consumer interest in home and kitchen modernization with the use of gas as a fuel.

Among the utilities which are showing the new film are the Northern States Power Co., Minneapolis, Minn., Public Service Electric &

Wearing Parts of REPUBLIC ENDURO *last longer*



Vital parts of many types of industrial equipment can be made more durable by the use of Republic ENDURO Stainless and Heat-Resisting Steels. And the great number of types of ENDURO enables the user to select just the right grade for each specific application.

In the valve illustrated, the stem is made of ENDURO FC. In this grade the analysis is controlled to give free-machining qualities without sacrifice of corrosion-resistance. The wearing parts—the seat, disc and ring—call for an entirely different type, ENDURO S-1. In this grade carbon is kept to .12% maximum and the chromium within the 11½ to 14% range. This provides a metal that can be heated and quenched to a Brinell hardness of 350 without affecting its corrosion-resistance—a metal that will withstand abrasion and impact, and is ideal for wearing parts operating under conditions involving corrosion and high temperatures.

Republic metallurgists will gladly assist you in selecting the correct type of ENDURO Stainless and Heat-Resisting Steels for any class of service.

Republic Steel
CORPORATION
GENERAL OFFICES · · · CLEVELAND, OHIO
ALLOY STEEL DIVISION · · MASSILLON, OHIO

When writing Republic Steel Corporation (or Steel and Tubes, Inc.) for further information, please address Department PF.

This page is reserved under the MSA PLAN (Manufacturers Service Agreement)

Gas Co., Newark, N. J., Union Gas System, Independence, Kansas, Knoxville Gas Co., Knoxville, Tenn., Peoples Water & Gas Co., Miami Beach, Fla., Memphis Power & Light Co., Memphis, Tenn., Southern California Gas Co., Los Angeles, Cal., City Gas Co., London, Ont., Canada; St. Louis County Gas Co., Webster Groves, Mo., East Ohio Gas Co., Akron, Ohio, Connecticut Light & Power Co., Hartford, Conn., Citizens Gas & Coke Utility, Indianapolis, Ind., United Gas System, Houston, Tex., etc. One gas company, the Lone Star Gas Company of Dallas, Texas, will run the new talkie as a feature in its exhibit at the Pan-American Exposition.

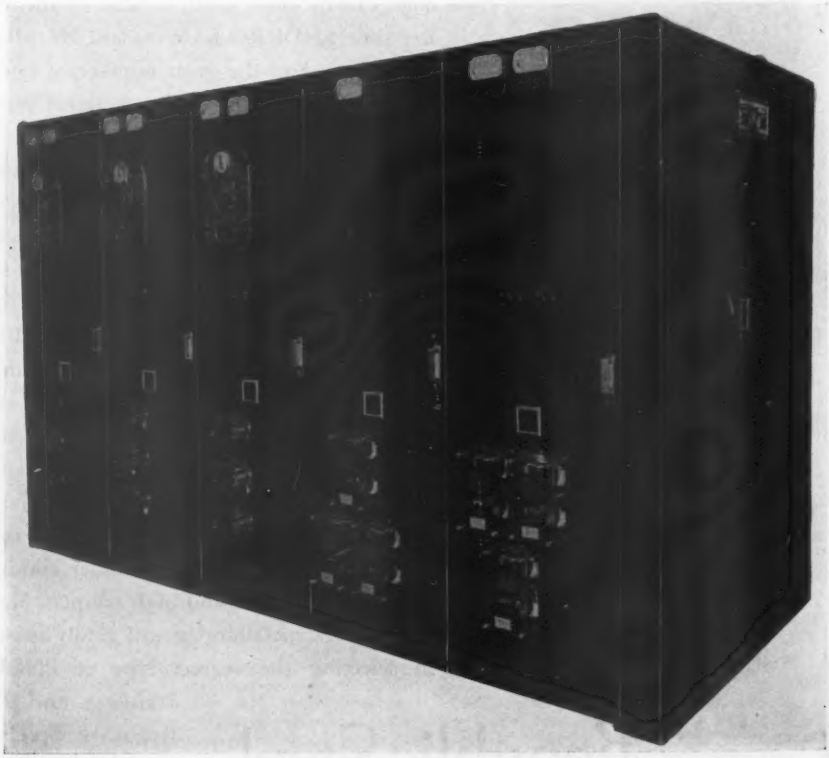
Produced in Hollywood with a professional cast, the new talkie tells a romantic story, replete with comedy and drama, that also gets over to its audience the benefits of gas appliances in the kitchen, gas house heating and air-conditioning, gas water heating, etc.

The new film is available in both the 35 and 16 mm. size and can be bought outright or rented through either Mason Wadsworth, the producer, at 551 Fifth Ave., New York, N. Y., or the American Gas Association, 420 Lexington Ave., New York, N. Y.

GE Orders up 59 Per Cent

ORDERS received by General Electric Company during the first six months this year amounted to $217,265,619, an increase of 59 per cent over the $136,968,597 received during the same period last year, President Gerard Swope announced recently. The record first half year was in 1929 when orders received amounted to $220,716,456.

Orders received during the second quarter of 1937 amounted to $111,518,589, compared with $77,398,718 during the corresponding quarter of 1936, an increase of 44 per cent. The second quarter this year was the largest since the third quarter of 1929.



New Industrial Type Metal-Clad Switchgear

This new industrial type "RI" vertical-lift five unit metal-clad switchgear is manufactured by Delta-Star Electric Company, Chicago, for controlling two 4000 volt incoming lines and three outgoing feeders in industrial plants using purchased power.

"HE'S DOWN IN THE PLANT TODAY!"

More than Ever Before Top Executives Are Back Scrutinizing Every Plant Operation

A great, highly trained organization of lubrication Specialists helps to develop profitable economies in plant operation

THE "BIG BOSS" takes his experience back into the plant today . . . because the keenest industrial minds in America recognize the need for more know-how, more knowledge of machines . . . more skilled workers.

For 71 years the makers of Gargoyle Lubricants have been helping the men who own plants . . . the men who run them. This experience — the greatest in the oil business—can be put to work in your plant . . . increasing manufacturing profits.

Take a Socony-Vacuum Engineer into your confidence. Let him discuss a program of planned "Correct Lubrication" with your plant men . . . those who know your operating problems best. Together, they may be able to devise ways and means of gaining more efficient production.

WHAT THIS EXCLUSIVE SERVICE CAN DO FOR YOUR PLANS

1. Curb losses that boost power consumption and costs.
2. Decrease maintenance — eliminate unnecessary repair bills.
3. Improve production results by greater machine efficiency.
4. Lower lubrication costs.
5. Help your men find ways to devise important economies.

SOCONY-VACUUM

INDUSTRIAL LUBRICATION

GARGOYLE Lubricants

SAVES MONEY FOR INDUSTRY

71 Years' Lubrication Experience — the Greatest in the Business

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

EMCO METERS *at work*

This industrial plant consumes a volume of gas large enough to supply a fair sized town. It's a profitable load for the gas company and one that is being measured ACCURATELY by EMCO Pressed Steel Meters.

PITTSBURGH EQUITABLE METER CO.

MERCO NORDSTROM VALVE CO.

MAIN OFFICES PITTSBURGH, PA.

ATLANTA BUFFALO CHICAGO MEMPHIS
NEW YORK COLUMBIA KANSAS CITY PHILADELPHIA TULSA HOUSTON LOS ANGELES OAKLAND

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

PENNSYLVANIA TRANSFORMERS

If you are interested in engineering, operating or maintenance problems, you will appreciate the basic improvements in Pennsylvania Distribution Transformers; some of which are:

- Coils of circular shape, the same as in power transformers, balanced radially and axially against short-circuit stresses;
- Treatment of coils in varnish—not compound—(made possible by open-type construction) at temperature not exceeding 105 c, thus assuring safe, pliable insulation;
- Low temperature gradient between copper and oil, which permits greater overloads with safety;
- Stud Type Bushings brought out through pockets and bolted from exterior, giving maximum accessibility;
- Insulation fully co-ordinated with flash-over of bushings, resulting in complete surge-resisting qualities.

It will pay you to consider Pennsylvania Distribution Transformers before placing your next contract.

5

Pennsylvania Transformer Co.
1701 Island Avenue, N. S., Pittsburgh, Pa.

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

A new 1½- to 2-ton International Model D-35 equipped with special telephone field-maintenance body owned by the Citizens' Telephone Co., Decatur, Ind.

THE *New* INTERNATIONALS

International Harvester produces no "yearly model" changes in trucks. A new line is not just a matter of the calendar with this Company. It is interested only in keeping International Trucks at top efficiency.

The International "C" models, now on the highways in many tens of thousands, are living evidence that this policy gives the truck user what he needs for hauling satisfaction. There have been no better trucks on the market, but *now* there are better trucks by far—these new Internationals.

The International reputation has advanced steadily on performance and long life, on unequalled nation-wide service, and on the truck user's final objective—ECONOMY.

In the meantime, International has been constantly at work on engine and chassis design, load distribution and braking, increased power, fuel economy, and driver comfort. The resources of its engineering staff, its laboratories, its plants and proving grounds were centered in the development of a fundamentally better product. Today the many improvements are consolidated in this *completely new* line of trucks.

Today International Harvester offers truck users the finest value of the year, a product *engineered* to the moment and *styled* for public acceptance. These new trucks, ranging from Half-Ton units in the low-price field to rugged Six-Wheelers, are on display at any International branch or dealer showroom.

INTERNATIONAL HARVESTER COMPANY

606 So. Michigan Ave. (*Incorporated*) Chicago, Illinois

INTERNATIONAL TRUCKS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

"Shucks, I can turn all mine off in 60 seconds . . . they're Nordstroms."

Emco-Nordstrom Lubricated Plug Valve with gate valve face-to-face dimensions. Sizes 2" to 12".

For all utility services where a tight, easy turning valve is essential,—on oil, gas, steam, air and chemical lines.

Patented "Sealdport" lubrication.

MERCO NORDSTROM VALVE CO.

A Subsidiary of

PITTSBURGH EQUITABLE METER CO.

Main Offices: Pittsburgh, Pa. *Branch Offices*: New York City, Buffalo, Philadelphia, Columbia, Memphis, Atlanta, Chicago, Kansas City, Tulsa, Houston, Los Angeles, Oakland. Canadian Representatives and Licensees: Peacock Brothers, Ltd., University Tower Building, Montreal, Quebec.

NORDSTROM *Lubricated* VALVES

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Unloads a Car of Coal in 1½ Minutes

The Link-Belt rotary railroad car dumper has brought the economies of the vertical lifting type of dumper within the reach of those whose unloading requirements are comparatively low. It handles with ease, cars 26 ft. to 60 ft. long, 7 ft. to 12½ ft. high; 8½ ft. to 11 ft. wide, and with capacities up to 120 tons.

Operation is so simple, automatic and fool-proof, that unskilled labor can perform it readily; it is completely under control at all times, and can be stopped instantly at any point of cycle.

The standard 50 ft. dumper is a paying investment where the unloading requirements do not exceed 15 to 20 cars a day, and of course the savings are greater where more cars are handled. It is readily adaptable to existing or new plants.

Send for folder No. 1004. Address Link-Belt Company, Chicago, Indianapolis, Philadelphia, Atlanta, San Francisco, Toronto. Offices in principal cities.

7081

LINK-BELT

ROTARY RAILROAD CAR DUMPER

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

MORE THAN A MILE
OF CUBIC FEET OF
Cooler Air PER MINUTE

GUTHFAN

GUTHFAN

• No. R4508

GUTHFAN—*"Cools You All Over"*

with Indirect Lighting

Efficient, modern-day illumination, providing glareless, shadowless, soft lighting, is available with GUTHFAN, as one complete unit.

Office-morale, the will to work, is definitely enhanced by this proper method of lighting and cooling.

GUTHFANS are equipped with guaranteed motors; Guth indirect lighting reflectors are finished by the amazing new ALZAK process.

Write us for further particulars.

MAILING COUPON

Edwin F. Guth Company,
2600 Washington Ave.,
St. Louis, Mo.

Send immediately additional information on

GUTHFAN INDIRECT LIGHTING

Name .....

Firm .....

.....

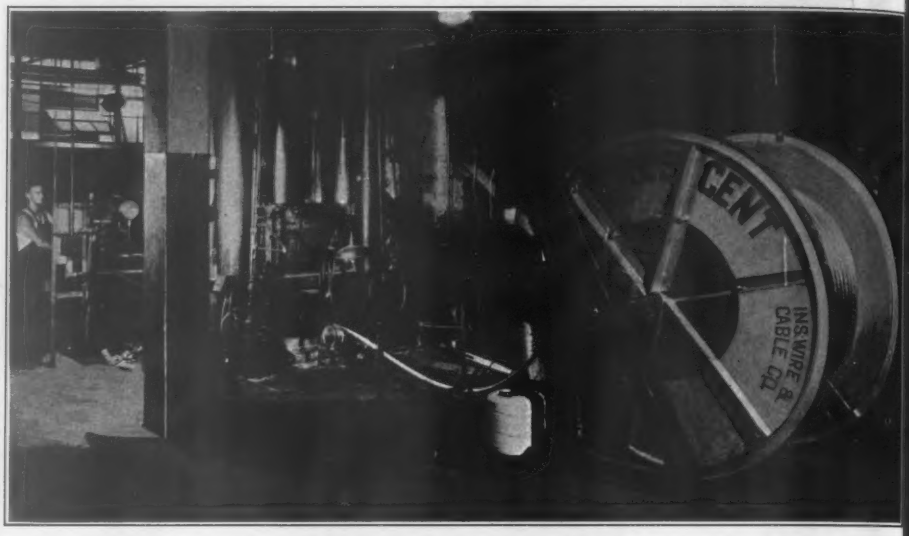
Address .....

.....

.....

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

CRESCENT WIRES and CABLES



ARE CRESCENT MADE

Every Foot of the Way

Illustrated above is a Large Hydraulic Press Extruding Lead Sheath on Power Cable.

CONTROL CABLE
DROP CABLE
LEAD COVERED CABLE
MAGNET WIRE
PARKWAY CABLE
RUBBER POWER CABLE
SERVICE ENTRANCE CABLE
SIGNAL CABLE
VARNISHED CAMBRIC CABLE
WEATHERPROOF WIRE

All types of Building Wire and all kinds of Special Cables to meet A.S.T.M., A.R.A., I.P.C.E.A., and all Railroad, Government and Utility Companies' Specifications.

Here, the sole emphasis is placed on the production of wire and cable for electrical use, alone—and every possible operation from processing the raw material to applying the finish, is completed in our plant.

Such specialized manufacturing activity gives full control of quality, impossible to attain by depending upon outside production facilities.

CRESCENT
INSULATED WIRE & CABLE CO. INC
TRENTON, NEW JERSEY

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

POINTING OUT TO YOUR CUSTOMERS *that*

wasted heat means wasted $$

Surveys show that too many steam tables consume more fuel than needed! In almost every case savings were made by replacing with modern tables equipped with Robertshaw thermostats—or by installing thermostats on the tables in use.

Cut your costs WITH
ROBERTSHAW STEAM TABLE THERMOSTATS

Stop the waste that's going on at your steam tables! Check up and see how Robertshaw thermostats will cut fuel bills. Your gas company or equipment dealer will gladly make the survey.

Robertshaw-equipped steam tables actually save their cost in fuel reduction alone! That's the experience others have had. That's the experience you will have. In addition they prevent overcooking; loss of flavor; food spoilage.

Every day you delay means money out of your pocket. Ask your gas company or equipment dealer today.

ROBERTSHAW THERMOSTAT CO.
YOUNGWOOD, PA.

ROBERTSHAW STEAM TABLE THERMOSTATS
Cost So Little—Save So Much
FOR STEAM HEATED AND GAS FIRED STEAM TABLES

"Stop that waste of heat!" That's the warning that Robertshaw advertising flashes to your customers. *"Stop it with Robertshaw thermostats"* is the advice it gives. *"Have an equipment survey made in your kitchen"* is the action it urges—over and over again.

Install steam tables equipped with Robertshaw thermostats or convert those in use with Robertshaw controls available for that purpose.

The savings made by such installations have often resulted in sales of additional new equipment. In many cases complete kitchen modernization has eventually followed.

ROBERTSHAW THERMOSTAT COMPANY
Youngwood, Penna.

Your customers see heat going to waste over their tables. They see it again in the Robertshaw advertising. They see that Robertshaw steam table thermostats will stop that waste. Cash in on this strong promotional campaign. It's running now in your customers' trade papers.

ROBERTSHAW steam table THERMOSTATS

Cost so little—save so much!

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Public Utilities Fortnightly

THE review magazine of current opinion and news relating to public utilities. Conducted as an open forum for the frank discussion of both sides of controversial questions—economic, legal and financial; also gives trends in the present-day control of these companies—governmental competition—state and Federal regulation.

¶ Issued every other Thursday—26 numbers a year—annual subscription $15.00.

¶ The only magazine furnishing current and vital information on all subjects involving the financing, operation, and management of public utilities under governmental regulation and competition.

¶ A magazine of unusual value and current stimulation to all persons holding positions with, or having a financial interest in, public utilities.

ORDER FORM

PUBLIC UTILITIES FORTNIGHTLY
1038 Munsey Building, Washington, D. C.

Please forward, prepaid, to the undersigned, Public Utilities Fortnightly (26 issues), at $15.00, beginning with the current issue.

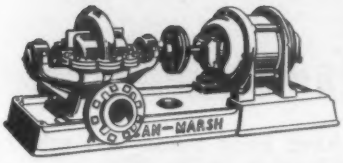
Name _____

Address _____

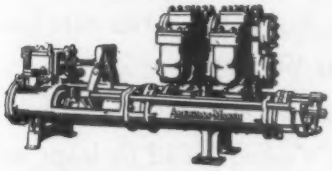
_____

Date _____

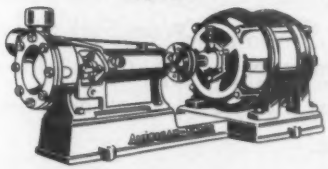
We Change Our Name!



CENTRIFUGAL PUMPS . . Split and solid case types.



TURBINE PUMPS . . Only one wearing part, a perfectly balanced impeller.



STEAM PUMPS . . Simplex and Duplex types in all practical sizes.

Years ago our old name — American Steam Pump Company — was entirely appropriate, for then we made steam pumps only.

But now we also build centrifugal pumps, turbine pumps and power pumps for many services.

And so to better associate our Company name with our long established trade name — American-Marsh — by which most of our equipment is known, we have recently changed our Company name to that used in the signature below.

However, there has been no change in financial structure . . . no change in management . . . no change in quality standards maintained for more than 60 years . . . no change in address.

May we be favored with your next pumping inquiry?

AMERICAN-MARSH PUMPS, INC.

Centrifugal, Turbine, Steam, and Power Pumps

BATTLE CREEK . . . . MICHIGAN

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

20 million Water Meters (ALL MAKES) sold in last 57 years

Millions scrapped by obsolescence

Over 5 million Trident & Lambert Meters sold in past 24 years

None scrapped No obsolescence

No deterioration. Capital value unimpaired

A Total of Over 6 Million Trident and Lambert

Water meters have been made and sold to date! The reason why these meters stay new is because you can get, and easily put in, modern *new parts*—even though the meters date back to 1899, or nearly 40 years!

LAMBERT and TRIDENT WATER METERS—Split Case Type

The other reason why the sale of Trident and Lambert meters is going ahead by leaps and bounds is told in one word—QUALITY! A type for every purpose. Neptune Meter Co. (Thomson Meter Corp.), 50 West 50th Street (Rockefeller Center, New York City—also—Neptune Meters Ltd., 345 Sorauren Ave., Toronto, Canada.

1913 (1st million Trident Meters)

1937 (Over 6 million Trident & Lambert)

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

for GENERAL UTILITY

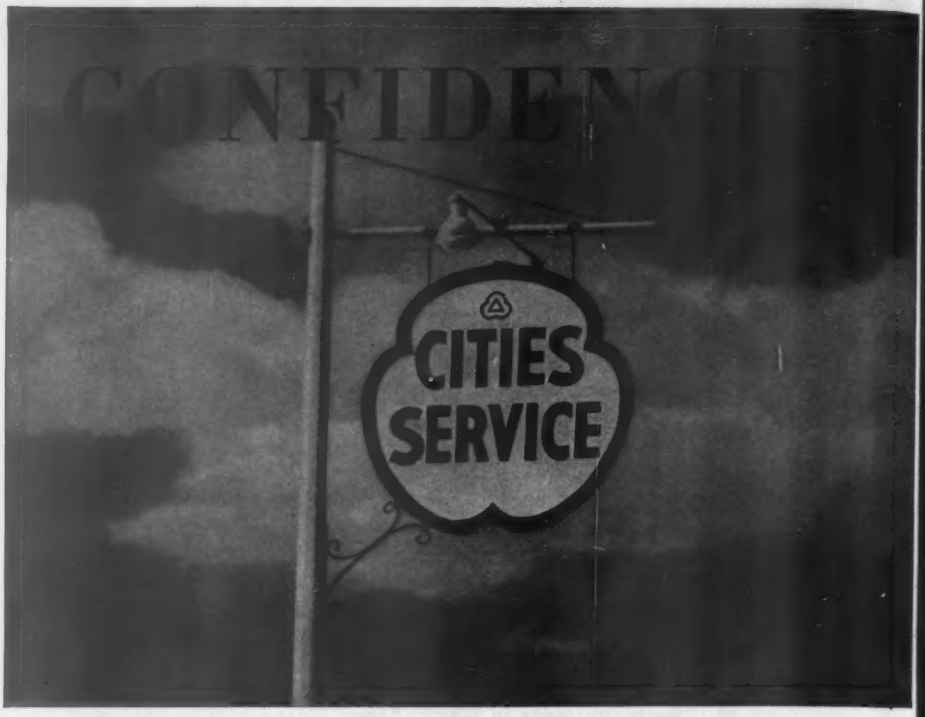
● The many ways in which *Barco Gasoline Hammers* will prove useful in company operations would make a list too long to print here. Some of them will only be discovered in emergencies by a regular Barco user.

Public Utilities have a wide use for a portable power hammer which one man can transport and operate. Ask for descriptive bulletin giving operating principles and low cost of these hammers. Then discover the many jobs on which they will save a tenth of the investment.

BARCO MANUFACTURING CO.
1803 W. Winnemac Ave., Chicago, Ill.

BARCO *portable* GASOLINE HAMMER

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*



Whether You Buy A Tankful Of Gasolene Or A Carload Of Oil—You Can Be Sure That* CITIES SERVICE PRODUCTS *Are Unsurpassed!

THE QUALITY of Cities Service gasolenes, oils and greases is guarded every step of the way from the oil well to you. For Cities Service is a completely integrated unit in the oil industry, engaged in all phases of petroleum operation... production, transportation and refining. The finished products, backed by 74 years of refining experience, reach you through 15,000 reliable outlets. The Cities Service emblem is your guarantee of dependable products and efficient, courteous service.

CITIES SERVICE

Serves A Nation!

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

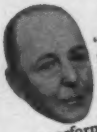
NATION-WIDE VERDICT

"LOW-PRICED 1937 DODGE MOST BRILLIANT PERFORM-ING TRUCK EVER BUILT!"

NEW 1937 DODGE ½-1 TON EXPRESS—6-Cyl.—Offered on 120" chassis with 84" body, and 136" chassis with 108" body.

OHIO

"After comparing various low-priced trucks for appearance and money-saving features, we recently switched to Dodge. We are pleased indeed with our choice and especially like the way Dodge saves us money on gas." —Joseph L. Baer, Cincinnati, Ohio.



NEW YORK

"We switched to the 1937 Dodge truck because it has extra-quality truck features. Our low-priced Dodge truck is giving us performance we never dreamed of getting from any truck—and at an actual saving in gas."— Fred F. Williams, New York, N. Y.

CALIFORNIA

"I have owned and driven trucks for 30 years and the performance of this new low-priced Dodge has simply astonished me. I am getting a lot more power on less gas than ever before. Right now it looks like I will save as much as $95 on gas alone this year." —W. Savage, Glendora, Calif.

NO WONDER THOUSANDS ARE SWITCHING TO DODGE TRUCKS

QUALITY FEATURES LIKE THESE MEAN BETTER PERFORMANCE

- **ROLLER-BEARING UNIVERSALS**—check ruinous backlash.
- **AMOLA STEEL SPRINGS**—only Dodge gives you this feature.
- **ONE-PIECE REAR AXLE HOUSING**—pioneered by Dodge in low-priced trucks.
- **EXHAUST VALVE SEAT INSERTS**—also pioneered by Dodge to save gas and valve grinding.
- **FOUR PISTON RINGS**—only Dodge of the lowest-priced trucks gives you 4 piston rings, others have only 3.

Dodge trucks have dozens of extra-quality features... yet are priced with the lowest.

FROM coast to coast, an amazing number of truck buyers, who compare low-priced trucks feature by feature, are switching to Dodge. What Dodge extra-quality truck features mean in *performance* as well as *economy* is indicated by the users' statements printed on this page. Before you buy any truck, find out how Dodge quality features can save money for you. Get a show-down! See why thousands are switching! See your Dodge dealer today.

DODGE
Division of Chrysler Corporation

Dependable
DODGE TRUCKS

Easy terms gladly arranged to fit your budget, at low cost, through Commercial Credit Company.

MISSOURI

"I am certainly glad I switched to Dodge. It is not only saving me money every mile on gas, but I never dreamed any truck could perform like it does. My check-up has proved to me that Dodge rides easier, handles easier, does a better hauling job for me." —Curt Heller, R. R. No. 6, Columbia, Missouri.

ILLINOIS

"I switched to Dodge and I am certainly glad I did for this truck gives me the kind of performance I never dreamed of getting in a low-priced truck. On top of getting more work done, my new Dodge is actually saving me around $7 to $8 a month on gas." —J. E. Tooper, Kankakee, Illinois.

Tune in on the Major Bowes Original Amateur Hour, Columbia Network, every Thursday, 9 to 10:00 P. M., Eastern Daylight Saving Time.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Wagner DISTRIBUTION TRANSFORMERS

At the right is shown a new Wagner 15-kva, 2400-volt, type HEB stud-bushing-type distribution transformer. It has coordinated bushings and insulation and is self-protective against lightning and, therefore, inherently a surge-protected transformer.

Whatever your distribution transformer requirements may be for the proper and economical distribution of electric power, whether in urban or rural regions, there's a Wagner transformer ideally suited for each job. Wagner distribution transformers are manufactured in all commercial frequencies and voltages in sizes 1½ to 500 kva.

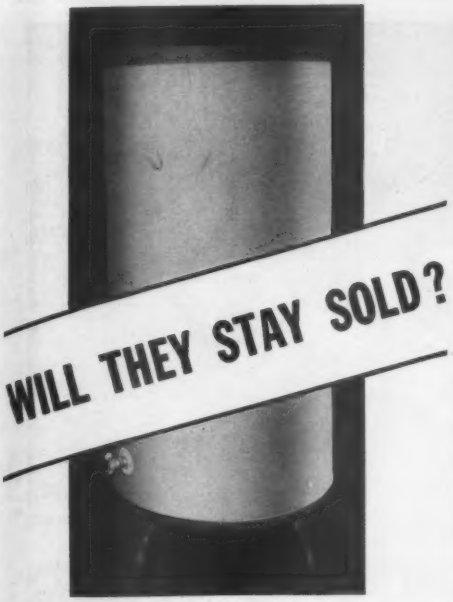
Write today for Wagner's BIG Distribution Transformer Bulletin #180.

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, U.S.A.

TRANSFORMERS • MOTORS • FANS • BRAKES

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*



The sale of electric water heaters is attractive business for both manufacturer and utility. But how will their sale affect good-will . . . will the water heaters *stay* sold?

That depends on how the heater performs: in delivering hot water as needed; in cost of operation; in safety; and in durability.

The performance of any water heater, in one or all of these respects, can be readily determined by Electrical Testing Laboratories, thanks to special measuring apparatus and instruments and conditioned test rooms.

Performance facts on water heaters, *or on other electrical appliances,* make it easier for a utility to decide whether such equipment will stay sold and continue to build good will. May we serve you?

ETL
ELECTRICAL TESTING LABORATORIES
80th Street and East End Avenue
New York, N. Y.

Full Size Professional
ARC WELDER

Here's thrilling news! A full size, heavy duty Aladdin Electric ARC WELDER —only $39.25 with De Luxe Accessories! Not a toy, but a big, 100-pound man-sized machine that welds all weldable metals and alloys with amazing efficiency, everything from cast iron parts to light sheet metal. A sturdy, welded-steel-construction machine, yet easily portable on casters.

Only $39.25 With Deluxe ACCESSORIES

WORKS FROM 110-VOLT SOCKET

Simply plug into any 110 or 220 volt A.C. electric socket. Economical—costs only a few pennies an hour to use. Often pays for itself on first or second job. Can be carried right to outside jobs in auto truck or side car. Has complete heat controls. Anyone can use easily. Instructions for doing all kinds of welding jobs included.

Amazing Details FREE!

Send no money! Write today for fascinating facts about this new Aladdin ARC WELDER with De Luxe Accessories. Aladdin is the ideal welder for Public Utility service, maintenance and construction work—a highly efficient machine GUARANTEED TO MEET ALL CLAIMS, at a fraction of the price asked for others—at a saving that may amount to *several hundred dollars!* Send today for full details. You are not obligated.

COMMONWEALTH MFG. CORP.
4208 Davis Lane Dept. U-70 Cincinnati, Ohio

CONSTANT SERVICE

This combined meter box and service switch is built to give constant service under the toughest weather conditions.

Aluminum or rust-proofed steel . . fused pullout switch . . special weatherproof door . . plenty wiring space . . any desired knockouts.

Write today for complete information

Series 95

WALKER ELECTRICAL COMPANY
ATLANTA GEORGIA

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

"What does business care about you and me?"

Anyone who knows anything about business knows that the query which heads this advertisement is Foolish Question No. 1.

As well ask: what do your lungs care about air, what does a fish care about water, what does a politician care about votes?

Business *lives* by people—by people like "you and me"—for people are the market for the things Business produces and sells.

Folks in business *are* people—weary and energetic, worried and hopeful people—customers of other businesses—even as you and I.

That's all very well, you may say, for the majority of businesses, but how about the big ones—the special privilege stuff and all—how about that?

Okeh, let us ask you: what great business do you know that grew big *without having customers,* what business can stay big unless it continues to *please* the customers it has?

No, the facts are all the other way.

The bigger a business, *the more stake it has in seeing the average man prosper.*

The bigger a business, *the more vital it is that it have customers with the buying power, after paying for food, shelter and clothing, to afford the other things business has for sale.*

And smart businesses have learned that they can't simply rely on bigness. The sweetest target a quick-thinking, up-and-coming man of enterprise can have is a big competitor who isn't alive to the public's wants.

One solemn truth brought home by the depression was, that in America "When there is no business, the people perish," and every sensible business man is aware that the rule works both ways.

Four-fifths of the National Income goes to workers, that is, about 65 per cent to those paid wages and salaries by employers and about 15 percent to those who pay themselves mainly wages or salaries.

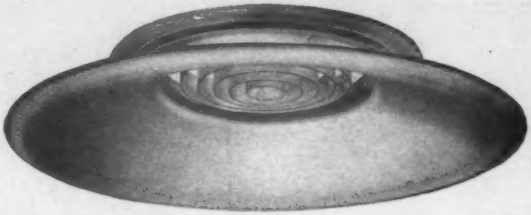
This income averages $1100 per year to each worker.

If no one of these workers were permitted a wage or salary in excess of $5000 and *all* above that amount were distributed evenly to those who receive less than $5000, each would get about 85 cents more a week.

This advertisement is published by

NATION'S BUSINESS

—a magazine devoted to interpreting business to itself, and bringing about a better understanding of the intricate relations of government and business. The facts published here are indicative of its spirit and contents. Write for sample copy to NATION'S BUSINESS, WASHINGTON, D. C.



A New Ceiling Illuminator *for* Built-in Direct Lighting Units

When floors are light in color, light controlled by Permaflectors set flush in the ceiling and concealed by stippled roundels or louvers is reflected back to the ceiling, relieving any feeling of darkness.

But when floors are dark, the reflected light to the ceiling is reduced, causing too much contrast between the light source and the ceiling area. This presented a problem which has now been solved by the development of the Ceiling Illuminator.

In this device, which is adaptable to practically all built-in Permaflector direct lighting units, the louvers consist of the usual metal frame for attaching to the flush mounting ring and the outer vane of the concentric louver. It is a flared spinning so designed as to permit the bulk of the reflected light from the permaflector to pass through it in the usual way, but to intercept the outermost rays and reflect them latterly and upwardly to the ceiling, producing a very gradual falling off of light from the immediate vicinity of the unit to more distant points, resulting in the most satisfactory and effective illumination of the ceiling under all conditions.

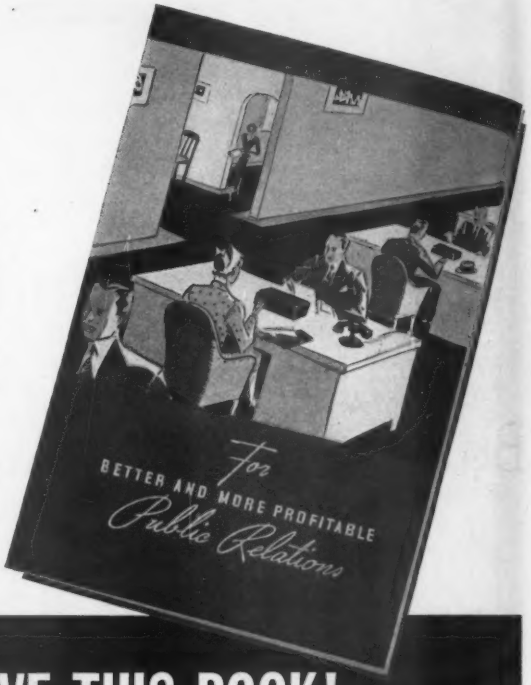
WRITE FOR A COPY OF THE DESCRIPTIVE FOLDER NOW BEING PRINTED

PITTSBURGH REFLECTOR COMPANY

OLIVER BUILDING PITTSBURGH, PA.

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

If your customers are ever kept waiting... If your customer contact departments are subject to seasonal or periodic congestion . . . If your bad debt losses are higher than they should be . .



YOU SHOULD HAVE THIS BOOK!

● It tells how the elapsed time for individual customer transactions in the offices of a public utility company can be (and *has been*) reduced from 10 minutes to 45 seconds each . . . It tells how new accounts can be opened, excess charge complaints adjusted—credit ratings, customer histories, amounts of deposits ascertained with remarkable speed . . . It describes a new method for the centralization of information and practically instantaneous voice contact between departments . . . It deals not with theory but with fact—telling of surprising results achieved by firms such as Kansas City Power and Light Co., New York Edison Co., Public Service of N. J., etc.

DICTOGRAPH PRODUCTS CO., INC.,
580 *Fifth Ave., N. Y. C.*

☐ *Please send me a copy of "Better and More Profitable Public Relations."*
☐ *Please have representative call.*

NAME .....
FIRM .....
ADDRESS .....
CITY ..... STATE.....
© 1937, Dictograph Prod. Co., Inc.

You should read "Better and More Profitable Public Relations." It will be sent on request without charge or obligation to interested public utility executives. Write, 'phone or use coupon.

DICTOGRAPH PRODUCTS CO., INC.
580 Fifth Avenue, New York, N. Y.
Manufacturers of Precision Equipment Since 1902

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

KLEIN
BELTS
Where life depends on a strap or belt of leather no compromise can be made with quality. Klein's leather is first quality, selected for its strength and durability and checked for chemical analysis and tensile strength. All hardware is drop forged from bar steel, individually tested to 1500 lbs. Stitching is done with hot waxed genuine Irish linen thread, lock stitched. Riveting by hand with solid copper rivets reinforces all necessary parts. Standard of quality with linemen and safety engineers everywhere.
Mathias KLEIN & Sons
Established 1857
Chicago, Ill. U.S.A.

GOOD INSULATORS

V

Insulators are only as good as the experience and workmanship put into their production.

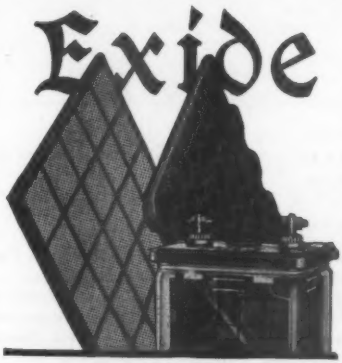
Our product is produced by men of the greatest experience to be found in the industry.

VICTOR made insulators are GOOD INSULATORS.

Catalog on request

Victor Insulators, Inc.
Victor, N. Y.

It Would Be Hard to Build a More Dependable Battery



CHLORIDE BATTERIES

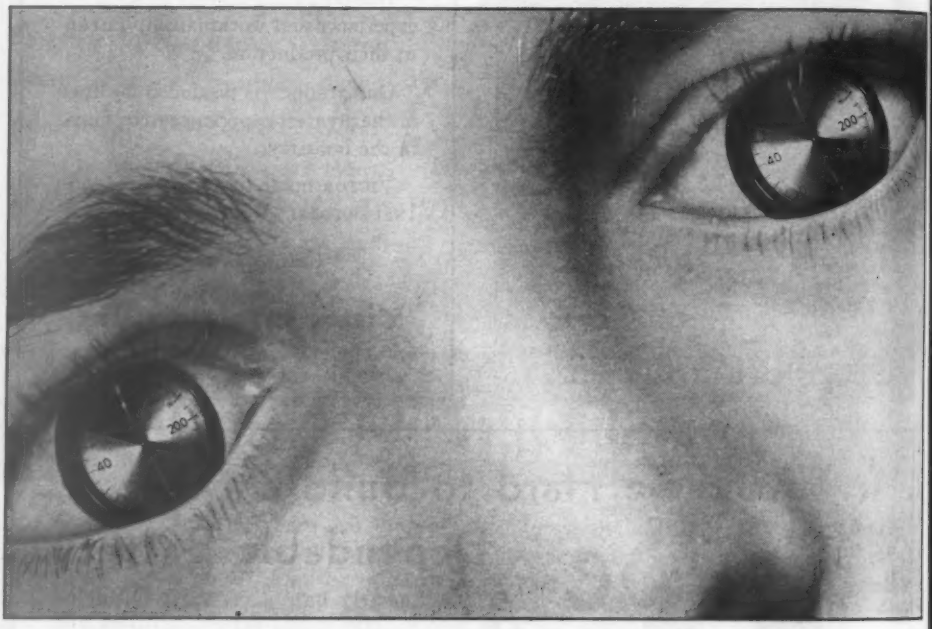
AFTER nearly half a century — during which time it has served utilities and industrial plants all over the world — the Exide Chloride Battery remains, in the opinion of competent engineers, the best battery ever designed for control bus or other stationary service.

The active material of its positive plates —tightly coiled strips of corrugated lead— remains embedded in the alloy grids for years, while the material of the negative plates, virtually sealed up in boxes of perforated sheet lead, gives an equally long and gratifying life. Our new Bulletin 204, describing this widely known and used battery, is yours for the asking. Write for a copy.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

See the exact temperature through these "EYES" . . .



Through Taylor Dial Thermometers read clearly . . . accurately . . . unfailingly . . . the temperature-picture at important points in power production

WHERE no permanent record is needed . . . where no comparison of temperatures during a twelve or twenty-four-hour period is desired . . . but where there must be a constant check on temperatures, use Taylor Dial Thermometers to watch them for you.

Taylor Dial Thermometers meet exacting demands for accuracy, durability and long service. They are simple and sturdy in design, and are the product of craftsmen who combine knowledge of industrial and scientific needs with superlative skill in construction.

The Mercury-Actuated type of thermometer is particularly designed for use where operating conditions are severe. It is efficient anywhere within limits of minus 40° F. and plus 1000° F.

The Vapor-Actuated type is especially useful where very open scale divisions are needed over a restricted working temperature range. It can be used for temperatures up to 660° F.

Because of the fine accuracy and unusual durability of all Taylor Dial Thermometers, users find that it is worth while to standardize on them throughout their plants. Discuss their use with a Taylor Representative, as we hope you will talk over any of your problems of temperature, pressure or flow control. See him about details on Taylor indicating, recording and controlling instruments and on Taylor Control Systems specifically for use in Power Plants and in the distribution of power. Taylor Instrument Companies, Rochester, N.Y., or Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

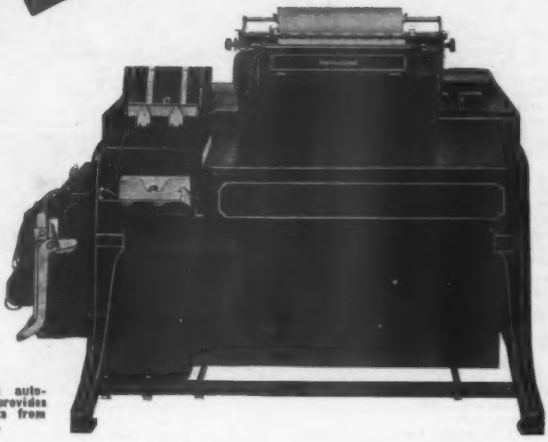
Taylor

Indicating Recording • Controlling

TEMPERATURE, PRESSURE and FLOW INSTRUMENTS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

FLEXIBILITY



This machine automatically provides printed reports from punched cards.

The same machine for all phases of UTILITY ACCOUNTING

¶ It isn't necessary to have a large volume of business to benefit by the punched card method of accounting. This modern, widely accepted accounting method now offers a unique and economical advantage to small and medium-sized companies.

¶ This advantage lies in the flexibility of the machine shown above. This one machine will take care of practically every type of utility accounting. Automatically, from punched cards, it will prepare complete, alphabetic and numerical reports. By simply altering the controls on this machine you can switch from Billing to Payroll to Operating Ledgers—all in a matter of minutes.

¶ Let us send you detailed information regarding the accounting economy which this flexibility means to you.

INTERNATIONAL BUSINESS MACHINES CORPORATION

GENERAL OFFICES:
270 BROADWAY, NEW YORK, N. Y.

BRANCH OFFICES IN
PRINCIPAL CITIES OF THE WORLD

This page is reserved under the MSA PLAN *(Manufacturers Service Agreement)*

INDEX TO ADVERTISERS

Page

A

Aluminum Company of America 30
American Accounting Association 28
American Engineering Company 31
American-Marsh Pumps, Inc. 65
American Street Illuminating Company 22

B

Babcock & Wilcox Company, The 40
Barco Manufacturing Company 67
Berger Manufacturing Company 35
Black & Veatch, Consulting Engineers 81
Bristol Company, The 49
Buckeye Traction Ditcher Company 36
Burnham Boiler Corporation 48
Burroughs Adding Machine Company 13

C

Carter, Earl L., Consulting Engineer 81
Cheney, Edward J., Engineer 81
Chevrolet Motor Division of General Motor Sales Corp. 79
Cities Service Company 68
Cleveland Tractor Company 25
Cleveland Trencher Company 29
Combustion Engineering Company, Inc. 15
Commonwealth Mfg. Corp. 71
Connelly Iron Sponge & Governor Company 46
Copperweld Steel Company 27
Crescent Insulated Wire & Cable Company, Inc. 62

D

Davey Compressor Company, Inc. 22
Davey Tree Expert Company, The 42
Delta-Star Electric Company 44
Dictograph Products Company, Inc. 74
Ditto, Inc. 18
Dodge Division of Chrysler Corp. 69

E

Electric Storage Battery Company, The 75
Electrical Testing Laboratories 71
Ellicott Company 50

F

Frigidaire Division of General Motors Sales Corp. 45
Ford, Bacon & Davis, Inc., Engineers 81
Foster Wheeler Corporation 19

G

General Electric Company ..... Outside Back Cover
General Motors Truck & Coach Division 34
General Paint Corporation 39
Goodrich, B. F., Company, The 3
Graver Tank & Mfg. Co., Inc. 17
Grinnell Company, Inc. 11
Guth, Edwin F., Company 61

H

Hays Manufacturing Company 42
Hoosier Engineering Company 23

I

International Business Machines Corporation 77
International Harvester Company, Inc. 58

(Concluded on Page 80)

CHEVROLET ANNOUNCES NEW 3/4-TON AND 1-TON TRUCK MODELS

Choose trucks that exactly fit your haulage or delivery requirements from 5 different load capacities

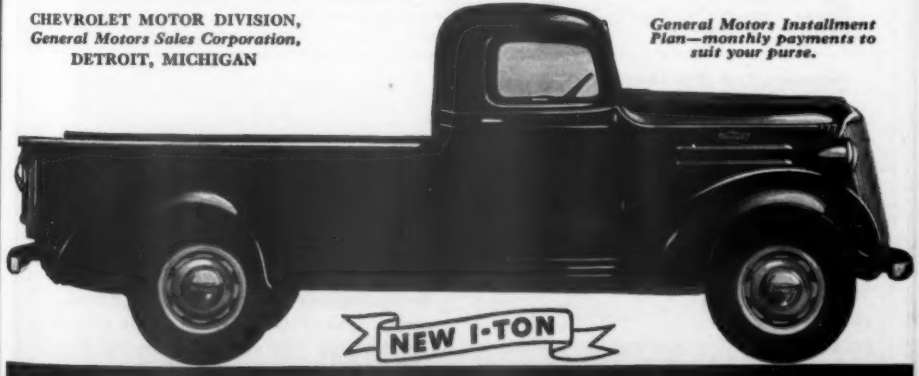
LIGHT DELIVERY MODELS . . HALF-TON MODELS . . ¾-TON MODELS . . 1-TON MODELS . . 1½-TON MODELS

CHEVROLET FOR ECONOMICAL TRANSPORTATION

By the addition of these new truck sizes, Chevrolet extends new operating economies to thousands of truck users—the economy of trucks that completely fit each haulage or delivery job. Make your selection from five separate Chevrolet truck lines—each offering a different size and different load capacity. All offer Chevrolet's famous performance and unmatched operating economy.

CHEVROLET MOTOR DIVISION,
General Motors Sales Corporation,
DETROIT, MICHIGAN

General Motors Installment Plan—monthly payments to suit your purse.



"MORE POWER per gallon - LOWER COST per load"

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

INDEX TO ADVERTISERS (Concluded)

	Page
J	
Jackson & Moreland, Engineers	81
Jensen, Bowen & Farrell, Engineers	81
Johns-Manville Corporation	43
K	
Kerite Insulated Wire & Cable Company, Inc., The	38
Kinnear Manufacturing Company	33
Klein, Mathias & Sons	75
L	
Lindemann, A. J. & Hoverson Company	28
Link-Belt Company	60
M	
Merco Nordstrom Valve Company	59
N	
Nation's Business	72
National Carbon Company, Inc.	37
Neptune Meter Company	66
Newport News Shipbuilding & Dry Dock Company	39
O	
Okonite Company, The	5
P	
Pennsylvania Transformer Company	57
Pittsburgh Equitable Meter	56
Pittsburgh Plate Glass Company	20
Pittsburgh Reflector Company	73
Plymouth Division of Chrysler Corp.	7
Postindex Company	82
Power Transmission Council	16
Pyrene Manufacturing Company	47
R	
Rains, Robert S. & Company	81
Remington-Rand, Inc.	9
Republic Steel Corporation	53
Ridge Tool Company, The	Inside Back Cover
Riley Stoker Corporation	26
Robertshaw Thermostat Company	63
Royal Typewriter Company, Inc.	21
S	
Saftey Gas Main Stopper Company	42
Sanderson & Porter, Engineers	81
Sangamo Electric Company	44
Silex Company, The	Inside Front Cover
Socony-Vacuum Oil Company, The	55
Spooner & Merrill, Inc.	81
T	
Tagliabue, C. J. Mfg. Company	28
Taylor Instrument Companies	76
Titan Valve & Manufacturing Company, The	24
V	
Victor Insulators, Inc.	75
Vulcan Soot Blower Corporation	46
W	
Wagner Electric Corporation	70
Walker Electrical Company	71
Williamsport Wire Rope Company	41
Wolff, Mark, Public Utility Consultant	81

PROFESSIONAL DIRECTORY

Ford, Bacon & Davis, Inc.

DESIGN
CONSTRUCTION
OPERATING COSTS

Engineers
VALUATIONS & REPORTS

RATE CASES
APPRAISALS
INTANGIBLES

CHICAGO PHILADELPHIA NEW YORK DALLAS WASHINGTON

SANDERSON & PORTER

ENGINEERS

VALUATION DEPARTMENT
APPRAISALS AND RATE QUESTIONS

CHICAGO NEW YORK SAN FRANCISCO

MARK WOLFF

Public Utility Consultant

Investigations, Rate Studies, Valuations, Reports, Expert Testimony
Corporate Reorganizations

NEW YORK, N. Y. CHICAGO, ILL.

BLACK & VEATCH

CONSULTING ENGINEERS

Appraisals, investigations and reports, design and supervision of construction of Public Utility Properties

4706 BROADWAY KANSAS CITY, MO.

JACKSON & MORELAND

ENGINEERS

PUBLIC UTILITIES—INDUSTRIALS
RAILROAD ELECTRIFICATION
DESIGN AND SUPERVISION—VALUATIONS
ECONOMIC AND OPERATING REPORTS

BOSTON NEW YORK

EARL L. CARTER

Consulting Engineer

REGISTERED IN INDIANA AND NEW YORK

PUBLIC UTILITY
VALUATIONS AND REPORTS

814 Electric Building *Indianapolis, Ind.*

JENSEN, BOWEN & FARRELL

Engineers
Ann Arbor, Michigan

Appraisals - Investigations - Reports in connection with rate inquiries, depreciation, fixed capital reclassification, original cost, security issues.

EDWARD J. CHENEY

ENGINEER

Public Utility Problems

61 BROADWAY NEW YORK

ROBERT S. RAINS & CO.

Special Consultants

Accounting, Taxes and Engineering

Munsey Building, Washington, D. C.
Telephone—Metropolitan 2430

ROBERT S. RAINS
Former Special Consultant
Federal Communications Commission

● This page is reserved for engineers and engineering concerns especially equipped by experience and trained personnel to serve utilities in all matters relating to rate questions, appraisals, valuations, special reports, investigations, design and construction. « «

SPOONER & MERRILL, INC.

Consulting Engineers

Design—Supervision of Construction
—Reports—Examinations—Valuations

20 North Wacker Drive Chicago, Ill.

IT KNOWS all the ANSWERS

WHICH CUSTOMERS BUY ONLY PART OF REQUIREMENTS FROM US ?
WHICH MATERIALS ARE OVERSTOCKED ? WHICH SHOULD BE RE-ORDERED ?
WHAT ARE THE COSTS IN THE DIE CASTING DEPARTMENT?
WHICH CUSTOMERS DESERVE CREDIT AND HOW MUCH ?

Postindex Visible Filing Equipment Gives You An Instantaneous Picture of Your Business.

All Control Information is Placed At Your Fingertips!

Control Information—the facts and figures which speed the movements of goods and service—must be at the operator's fingertips. Operating Executives know this. That is the reason more and more of them are turning to Postindex.

Postindex Visible Files offer five distinct advantages: (1) the form is its own holder (2) four sides to write on, thus doubling the capacity and utility of the single record form; (3) offset signalling; (4) faster posting; (5) four types of files to suit the use requirements of your business. Sample forms for any record purpose will be sent on request, also a complete catalog of Postindex Visible Filing Equipment.

POSTINDEX COMPANY

JAMESTOWN, N. Y.

A Division of

ART METAL CONSTRUCTION COMPANY

Postindex Visible Files

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

Fast, Easy

PIPE CUTTING With this Remarkable RIDGID Thin Tool Steel Cutter Blade

The secret of its unusual performance lies in the way the wheel blade made. Coined from sheet tool steel, hammered, heat-treated and st into a reinforced hub, this RIDGID blade has the stamina that kes it stand up through hundreds of extra pipe cuts, leaving prac-ally no burr.

● You'll like the RIDGID Cutter—try one at your jobber's.

● Housing of the RIDGID Cutter is steel reinforced, guaranteed not to break or warp. Makes the blades always cut true.

RIDGID

A Mate

● The RIDGID Wrench with unconditionally guaranteed housing—that saves you fully 75% of your wrench repairs.

THE RIDGE TOOL CO., ELYRIA, OHIO

RIDGID PIPE TOOLS

This page is reserved under the **MSA PLAN** *(Manufacturers Service Agreement)*

INDOOR METAL-CLAD SWITCHGEAR

15,000 VOLTS, 600 AMPERES
250,000-KVA INTERRUPTING RATING

	THE OLD	THE NEW
Weight Per Unit (pounds)	5125	2100
Weight of Circuit Breaker (pounds)	2270	994
Breaker Diameter (inches)	28	20
Breaker Height (inches)	57	37
Oil Per Breaker (gallons)	74	19
Interrupting Time (cycles)	15	8

PROGRESS THAT CUTS YOUR COSTS

SINCE 1929, the size and weight of metal-clad switchgear have been cut in half. To-day's metal-clad is therefore much easier to handle, and it costs less to install. Circuit-breaker operation has been speeded up from 15 to 8 cycles, and the control is now built in — as an integral part. All these are fundamental advances that save you money in installation, operation, and maintenance.

There have been no "depression" years in the development of G-E apparatus. We can show you equally important advances in the design of turbine-generators, transformers, regulators, substation equipment, cable, and meters. There is hardly an item in our entire line of power apparatus, co pared with that built only a few years ago, th does not represent greater value per dollar of co — value that you can measure in improved p formance, reduced operating expense, or bet service to your customers.

It pays to select equipment that represents i proved design and advanced engineering—for t reasons: First, you get more value for your mo and, second, you encourage the manufacture do more and more of this kind of work. The re is continued progress of the industry—progr that cuts your costs.

96-402B

This page is reserved under the MSA PLAN (*Manufacturers Service Agreement*)

GENERAL ELECTRIC